THE
Carpenter's Rule made Eaſy:
OR,
The ART of MEASURING
Superficies and *Solids.*

ALSO

A SECOND WAY, being the Ground-Work of Meaſuring Timber, Stone, Board, Glaſs, *&c.*

With a Table of ACCOUNT, much enlarged; performing *Multiplication*, *Diviſion*, the *Golden Rule*, and *Rule Reverſe*, by Inſpection.

Being of Excellent Uſe for Carpenters, Joyners, Maſons, Glaſiers, Painters, Sawyers, *&c.* By JOHN DARLING.

And alſo a Treatiſe of *Practical Gauging.*
By HEBER LANDS.

The EIGHTH EDITION, carefully Reviſed and Corrected; with an Addition of the Uſe of the *Sliding-Rule*, and of *Gunter's* Line with Compaſſes, in Meaſuring Plank and Timber; which renders this Book of more general Uſe than heretofore.

By *THOMAS HASELDEN*,
Teacher of the *Mathematicks.*

LONDON: Printed for H. TRACY, at the
Three Bibles on *London-Bridge*; and S. FITZER,
at the *Three Bibles* in the *Minories.* 1727.

BRITISH MUSEUM
30 DEC 60

TO THE READER.

Courteous Reader,

IF you love witty and merry Conceits, tread not this Stage, but on the other hand this Book, otherwiſe Grave *Cato* delights to ſpeak. Here you have the Ground-work of *Meaſuring* compriſed (as it were) in a Nutſhel; not ænigmatical, but ſuiting every Capacity : And though not writ with ſo great Exactneſs as many may expect, yet with as great Affection to aſſiſt my Countrymen.

Wherefore, at the requeſt of many that have occaſion to make uſe of ſuch kind of *Meaſure*, I have made it publick with exact *Tables* thereunto belonging, being perſuaded that it would be a great help, not only to *Carpenters*, but others that make uſe of ſuch *Meaſure*, eſpecially of ſuch as cannot read ; and that ſome of you having already the *Tables*, and ſhewed the ſtrength of *Figures* to the third or fourth Place, can (having the *Breadth* and *Square* given in *Inches*, and the *Length* in *Feet*) by the help of the *Table*, Meaſure any *Board* or piece of *Timber*, to your great content.

Moreover in this *Book* you have that noble Art of *Arithmetick* and *Geometry* diſplayed ; the *Rules* whereof, if well digeſted and practiſed, would make a compleat

compleat Artiſt ; though (I mu feſs) they may be but of ſmall Advantage to the Learned, yet to the Ignorant (for whoſe ſake chiefly I have this Eighth time expoſed them to publick view) they may prove a Furtherance to Knowledge.

By this Art, a juſt Partition of Lands is made, *Juſtice* her ſelf is limited, and Decrees of *Eſtates* in the *Commonwealth* are rightly eſtabliſhed ; yea, a *Commonwealth* is, as planted, ſo preſerved by it ; for without it, we ſhould be plunged in, and hurled into an *Ataxie* and Confuſion. It diſcovers to us that *Golden Rule* of *Meum* and *Tuum*, by which every one is in a ſure and clear Poſſeſſion of that he may call his own ; nay thus much more I will ſay of this Art, that is diſtinguiſheth a *Man* from a *Beaſt* ; which whoſoever ſlights, being rightly termed the *Golden Rule*, (whereby we ſquare our Actions) declares himſelf unworthy the *Fellowſhip* of *Men*.

onclude, you have here a *Book* only of *Meaſure* but *Number*, much more exactly deciphered in *Tables*, than heretofore. Read and practice; ſo I leave it to your Cenſure and Peruſal; remaining yours in Love,

John Darling.

THE CONTENTS.

THE *making the Two Foot Ruler,* Page 1
The Deſcription and Uſe of the Table of Board-Meaſure, 2
A Table of the Value of any Number *of Feet of Board, under an Hundred Foot, from Twelve-pence half-penny the Hundred Foot, to Twenty Shillings ten-pence the Hundred Foot.*
A Table of the Fractional Parts of a Foot of Board in the uſual Terms of the quarters and half quarters, 10
The Table of Board Meaſure, 11
Board Meaſure applied to the Glaſiers Uſe, 49
The Uſe of the Table of the Squaring of unequal Sided Timber, 52
The Table of the Square of unequal Sided Timber, 59
A Table of the Value of any Number of Feet of Timber under fifty Foot, from Twelve-pence half-penny, fifty Foot price, to Twenty Shillings ten-pence, fifty Foot price, 72
The Uſe of the foregoing Table, 74
Common Errors in meaſuring Timber, 76
The Table of the Fractional parts of a Foot of Timber, in the uſual terms of quarters and half quarters, 80

Contents.

…tion and Uſe of the Table of Timber Meaſure, Page 81
The Table of Timber Meaſure, 85
A Second way of Meaſuring Boards and Timber, 103
A way of Meaſuring Timber by the Table of 1728, 110
The Deſcription and Uſe of the Table of Multiplication, for the more ſpeedy caſting up the Content of any Stock of Boards or Timber, 123
A further Uſe of the Table of Multiplication, joined with the Table of Board Meaſure, applied to the Joyners, Plaiſterers, Painters, and Paviers Uſe, 125
The Rule of Three Direct and Reverſe, 134
Of Meaſuring Land, 137
Of Meaſuring a Triangle, 138
The Table of Multiplication, 139

BRITISH MUSEUM 30 DEC 60

THE

THE
Carpenter's Rule
Made Eaſy.

CHAP. I.
The making of the Two Foot Ruler.

THE Rule we ſhall make uſe of in meaſuring of Boards and Timber, by thoſe Tables, is no other than the common ordinary Rule now uſed by moſt Carpenters, being two Foot in Length, and divided (as is uſual) into Twenty four Parts or Inches, every Inch ſubdivided nto half Inches, every half Inch into quarters, and very quarter into half quarters: So every Inch s divided into eight Parts, and the whole Length f the Ruler into One hundred ninety and two Parts, which may ſerve our Purpoſe for the Meauring of Boards and Timber being made both plain nd eaſy; I will not therefore trouble you, nor the Book, with any Figure for the ſame, being ſo well known unto all.

CHAP. II.

The Deſcription and Uſe of the Table of Board Meaſure.

IN every Page is Five Ranks or Columns of Figures, divided with Lines; the firſt on the Left-hand begins at the Figure of 1, and increaſeth downward to 30, in every Page of the Table, and ſheweth the Length of the Board in Feet to be meaſured.

In the firſt Page on the Head of the Table, begins one quarter of an Inch in Breadth, and proceeds to half an Inch, and to 3 quarters.

The Second Page begins at one Inch of Breadth, and proceeds to one Inch and quarter, and an Inch and half, and three quarters. And ſo of every Page from quarter to quarter, to thirty ſix Inches of Breadth.

The Second Column of every Page ſheweth the Content in Feet, and Ten Thouſand Parts of a Foot, according to the Breadth on the Head of the Page, and the Length in Feet in the Firſt Column, the Fractional Parts being diſtinguiſhed from the whole Feet by a (.)

The third and fourth Columns ſhews the Content in Feet and Parts, according to the Breadth on the Head of the Page, and the Length in Feet in the firſt Column.

And ſo of the ſeveral Columns in every Page.

BRITISH MUSEUM 30 DEC 60

The Uſe of this Table, thus.

Let there be given a Board to be meaſured, look the Breadth on the Head of the Page in Inches and Parts, and the Length in Feet in the firſt Column of the Page, and in a ſtrait Line from thence in the common place of Meeting, in the Column of the Breadth is the Content in Feet, and Parts of a Foot.

What hath been before delivered of the Uſe might ſuffice, but knowing it will come into the Hands of many Men, to whom the plaineſt Things might ſeem hard: For their ſakes I will therefore ſhew by Example the meaſuring of ſeveral Boards by the Table.

The firſt Example.

Let the Figure *A* be a Board to be meaſured. A Carpenter or Joyner hath bought a Stock of Boards of Sixteen Foot in Length, and Fifteen Inches in Breadth, being Twelve Board, on the Stock; or a Sawyer hath cut Twelve Cuts in a Piece of Timber of the ſame Length and Breadth, which he deſires to know how many Foot of Sawing there is in the 12 Cuts, being to be paid by the 100 Foot ſawing, as is uſual in moſt Places in *England.*

Enter the Table with 15 Inches, the Breadth, which look on the Head of the Table, and from 16 Foot, the Length in the firſt Column of the Page, in a ſtrait Line; thence in the Column of the Breadth, you ſhall find the Content of that Board to be 20 Foot and no more, there being 12 Boards or Cuts, the Content is 240 Foot of Board on the Stock.

Look into the Table at Thirty Inches of Breadth, and the ſame Length Sixteen Foot, you ſhall find the Content of that Board to be Forty Foot, the Breadth Thirty Inches being double to Fifteen Inches, produceth Forty Foot, and ſo of any other Number in the Table.

The Second Example.

Let there be given a Board to be meaſured, being Sixteen Foot in Length, and Eight Inches and a quarter in Breadth.

Look on the Head of the Table as is before taught for eight Inches and a quarter, the Breadth of the Board, and from Sixteen Foot, the Length in a ſtrait Line from the firſt Column of the Page, in the common Place of Meeting in the Column of the Breadth is Eleven Foot, and no more. If there were eight Boards and a Stock of the ſame Length and Breadth, the Content would be found Eighty Eight Foot.

The Third Example.

Let there be given a Board to be meaſured 17 Inches three quarters in Breath, and 28 Foot in Length. Look the Breadth on the Head of the Table, and the Length in the firſt Column of the Page, and in a ſtrait Line from thence in the Column of the Breadth, is 41 Foot, and 4166 Parts of 10000 of a Foot, which by the little Table of the Decimal Parts of a Foot, will be found one quarter and half quarter of a Foot more.

If

If there were Fifteen Boards of the ſame Length and Breadth, the Content would be found 621 Foot, and 2490 Parts of 10000 of a Foot, near one quarter.

The Fourth Example.

Let there be given a Board to be meaſured 32 Inches in Breadth, and 37 Foot in Length. Look 32 Inches the Breadth on the Head of the Table, and from 30 Foot of Length, you will find 80 Foot; and from 7 Foot, the remainder of the Length, you will find 18 Foot, 6666 Parts of a 10000 of a Foot; which two Sums added together, will be 98 Foot and a half, and half a quarter. The Content of a Board 32 Inches in Breadth, and 37 Foot in Length; if there had been 25 Boards on the ſame Stock, the Content would be 2441 Foot and an half, and half a quarter.

CHAP. III.

HEREAFTER followeth a ready Table of the true Value of any Number of Feet of Board under an 100 Feet, from 12 *d.* halſpenny the 100 Foot, to 20 *s.* 10 *d.* the 100; and may be made uſe of, to 30 or 40 *s.* the 100.

100 Foot. Price.			1 Foot. Price.		2 Foot. Price.		3 Foot. Price.		4 Foot. Price.		5 Foot. Price.	
s.	*d.*	*q.*	*d.*	*q.*	*d.*	*q.*	*d.*	*q.*	*d.*	*q.*	*d.*	*q.*
1	0	2		0½		1		1½	0	2	0	2½
2	1	0		1		2		3	1	0	1	1
3	1	2		1½		3	1	0½	1	2	1	3½
4	2	0		2	1	0	1	2	2	0	2	2
5	2	2		2½	1	1	1	3½	2	2	3	0½
6	3	0		3	1	2	2	1	3	0	3	3
7	3	2		3½	1	3	2	2½	3	2	4	1½
8	4	0	1	0	2	0	3	0	4	0	5	0
9	4	2	1	0½	2	1	3	1½	4	2	5	2½
10	5	0	1	1	2	2	3	3	5	0	6	1
11	5	2	1	1½	2	3	4	0½	5	2	6	3½
12	6	0	1	2	3	0	4	2	6	0	7	2
13	6	2	1	2½	3	1	4	3½	6	2	8	0½
14	7	0	1	3	3	2	5	1	7	0	8	3
15	7	2	1	3½	3	3	5	2½	7	2	9	1½
16	8	0	2	0	4	0	6	0	8	0	10	0
17	8	2	2	0½	4	1	6	1½	8	2	10	2½
18	9	0	2	1	4	2	6	3	9	0	11	1
19	9	2	2	1½	4	3	7	0½	9	2	11	3½
20	10	0	2	2	5	0	7	2	10	0	12	2

100 Foot. Price.			6 Foot. Price.			7 Foot. Price.			8 Foot. Price.		9 Foot. Price.			10 Foot. Price.		
s.	d.	q.	s.	d.	q.	s.	d.	q.	s.	d.	s.	d.	q.	s.	d.	q.
1	0	2		0	3		0	3½		1		1	0½		1	1
2	1	0		1	2		1	3		2		2	1		2	2
3	1	2		2	1		2	2½		3		3	1½		3	3
4	2	0		3	0		3	2		4		4	2		5	0
5	2	2		3	3		4	1½		5		5	2½		6	1
6	3	0		4	2		5	1		6		6	3		7	2
7	3	2		5	1		6	0½		7		7	3½		8	3
8	4	0		6	0		7	0		8		9	0		10	0
9	4	2		6	3		7	3½		9		10	0½		11	1
10	5	0		7	2		8	3		10		11	1	1	0	2
11	5	2		8	1		9	2½		11	1	0	1½	1	1	3
12	6	0		9	0		10	2	1	0	1	1	2	1	3	0
13	6	2		9	3		11	1½	1	1	1	2	2½	1	4	1
14	7	0		10	2	1	0	1	1	2	1	3	3	1	5	2
15	7	2		11	1	1	1	0½	1	3	1	4	3½	1	6	3
16	8	0	1	0	0	1	2	0	1	4	1	6	0	1	8	0
17	8	2	1	0	3	1	2	3½	1	5	1	7	0½	1	9	1
18	9	0	1	1	2	1	3	3	1	6	1	8	1	1	10	2
19	9	2	1	2	1	1	4	2½	1	7	1	9	1½	1	11	3
20	10	0	1	3	0	1	5	2	1	8	1	10	2	2	1	0

100 Foot. Price.			20 Foot. Price.			30 Foot. Price.			40 Foot. Price.			50 Foot. Price.		
s.	d.	q.	s.	d.	q.	s.	d.	q.	s.	d.	q.	s.	d.	q.
1	0	2	0	02	2	0	03	3	0	05	0	0	06	1
2	1	0	0	05	0	0	07	2	0	10	0	1	00	2
3	1	2	0	07	2	0	11	1	1	03	0	1	06	3
4	2	0	0	10	0	1	03	0	1	08	0	2	01	0
5	2	2	1	00	2	1	06	3	2	01	0	2	07	1
6	3	0	1	03	0	1	10	2	2	06	0	3	01	2
7	3	2	1	05	2	2	02	1	2	11	0	3	07	3
8	4	0	1	08	0	2	06	0	3	04	0	4	02	0
9	4	2	1	10	2	2	09	3	3	09	0	4	08	1
10	5	0	2	01	0	3	01	2	4	02	0	5	02	2
11	5	2	2	03	2	3	05	1	4	07	0	5	08	3
12	6	0	2	06	0	3	09	0	5	00	0	6	03	0
13	6	2	2	08	2	4	00	3	5	05	0	6	09	1
14	7	0	2	11	0	4	04	2	5	10	0	7	03	2
15	7	2	3	01	2	4	08	1	6	03	0	7	09	3
16	8	0	3	04	0	5	00	0	6	08	0	8	04	0
17	8	2	3	06	2	5	03	3	7	01	0	8	10	1
18	9	0	3	09	0	5	07	2	7	06	0	9	04	2
19	9	2	3	11	2	5	11	1	7	11	0	9	10	3
20	10	0	4	02	0	6	03	0	8	04	0	10	05	0

The Uſe of the foregoing Table.

In the firſt Column of the Page is the price of 100 Foot of Board from Twelve-pence half-penny the Hundred, to Twenty Shillings, and Ten-pence the Hundred: The next Column is the price of one Foot of Board anſwering to the ſeveral Prices in the firſt Column; and on the Head of the Table is expreſſed the Price, from one Foot price to ten Foot price, and after 20, 30, 40, 50 Feet price.

If the price of an hundred Boards be 6 *s.* 3 *d.* what is 1 Foot at that price worth? Look in the firſt Column of the Page for the price 6 *s.* 3 *d.* and in the Column of one Foot price, doth anſwer 3 *q.* at a Foot price, one penny 2 farthings.

If the price of an hundred of Boards were 5 *s.* 2 *d.* 2 *q.* one Foot would be found worth 2 *q.* and half one farthing, two Foot 1 *d.* 1 *q.* the like of any other Feet would be found.

If the price of 100 of Boards were 12 *s.* 6 *d.* what would five Feet coſt? Look as before the price in the firſt Column of the Page, and in a ſtrait Line thence in the Column of five Foot price, is 7 *d.* 2 *q.* the Content; at the ſame price, what is 35 Foot worth? Look in the Column of 30 Feet price, you ſhall find to anſwer the price given 3 *s.* 9 *d.* which added to the five Feet price laſt found, the Content of 35 Foot is 4 *s.* 2 *d.* 2 *q.*

If the Price of 100 Planks were 25 *s.* what is 1 Foot worth? Look any two Numbers in the Column of 100 Feet price, that will make 25 *s.* And look what doth anſwer thoſe two Numbers in the Column of one Foot price, being added together is the Content of one Foot.

Suppoſe we take 19*s.* 9*d.* 2*q.* for one of the Sums, and 5*s.* 2*d.* 2*q.* the other Sum; the two Sums added is 25*s.* If you look in the Column of one Foot price for thoſe two Sums, the Content of one Foot will be found 3*d.* At the ſame price, what is 70 Foot worth? For 70 Foot look in the Column of 30 and 40 Foot Price; and for thoſe two Sums that make the price 25*s.* Thence in the Colums of 30 and 40 Foot price, the Sums added together, the Content is 17*s.* 6*d.* 70 Foot.

* * *

CHAP. IV.

The Table of the Fractional Parts of a Foot of Board, as they are expreſſed in the uſual Terms of half quarters and quarters, and the like, according to Decimal Arithmetick, in Primes, Seconds and Thirds, as in the Tables of Board and Timber Meaſure.

HALF a Quarter of a Foot is thus expreſſed.	1250
One Quarter.	2500
Quarter and half-quarter.	3750

Half

Half a Foot.	5000
Half a Foot and half-quarter.	6250
Three quarters.	7500
Three quarters, and half-quarter.	8750
One Foot.	10000

The Uſe of this Table.

If a Board be given to be meaſured, and having found by the Table, the Content in Feet, and there remains a Fraction, which being compared to the neareſt Number in this Table, or the next leaſt, will give the Content in the uſual Terms of quarter or half-quarter of a Foot, as in the Table is expreſſed.

If a Board be given to be meaſured 16 Inches and an half in Breadth, and 18 Feet in Length, the Content of that Board by the Table will be found 24 Foot, and 7500 parts of 10000 of a Foot. Which Fraction, by this Table will be found three quarters of a Foot, and no more. And the like of any other Fraction may be found.

CHAP. V.

Here followeth the Table of Board Meaſure.

Leng.	Breadth *of the Board.*	¼ *broad* Feet. 1234.	½ *quar.* Feet. 1234	3 *quar. broad* F.1234
1	00000	0.0208	0.0416	0.0625
2	00000	0.0416	0.0833	0.1250
3	00000	0.0625	0.1250	0.1875
4	00000	0.0833	0.1666	0.2500
5	00000	0.1042	0.2083	0.3125
6	00000	0.1250	0.2500	0.3750
7	00000	0.1458	0.2916	0.4375
8	00000	0.1666	0.3333	0.5000
9	00000	0.1875	0.3750	0.5625
10	00000	0.2083	0.4166	0.6250
11	00000	0.2291	0.4583	0.6875
12	00000	0.2500	0.5000	0.7500
13	00000	0.2708	0.5416	0.8125
14	00000	0.2916	0.5833	0.8750
15	00000	0.3125	0.6250	0.9375
16	00000	0.3333	0.6666	1.0000
17	00000	0.3541	0.7083	1.0625
18	00000	0.3750	0.7500	1.1250
19	00000	0.3958	0.7916	1.1875
20	00000	0.4166	0.8333	1.2500
21	00000	0.4375	0.8750	1.3125
22	00000	0.4583	0.9166	1.3750
23	00000	0.4792	0.9583	1.4375
24	00000	0.5000	1.0000	1.5000
25	00000	0.5208	1.0416	1.5625
26	00000	0.5416	1.0833	1.6250
27	00000	0.5625	1.1250	1.6875
28	00000	0.5833	1.1666	1.7500
29	00000	0.6042	1.2083	1.8125
30	00000	0.6250	1.2500	1.8750

Leng.	*1 Inch* Feet 1234.	*1 Inc. 1* *qu.*Feet 1234.	*1 Inc. 2* *qu.*Feet 1234.	*1 Inc. 3* *qu.*Feet 1234.
1	0.0833	0.1042	0.1250	0.1458
2	0.1666	0.2084	0.2500	0.2916
3	0.2500	0.3125	0.3750	0.4375
4	0.3333	0.4166	0.5000	0.5833
5	0.4166	0.5208	0.6250	0.7291
6	0.5000	0.6250	0.7500	0.8750
7	0.5833	0.7292	0.8750	1.0208
8	0.6666	0.8333	1.0000	1.1666
9	0.7500	0.9375	1.1250	1.3125
10	0.8333	1.0416	1.2500	1.4583
11	0.9166	1.1458	1.3750	1.6041
12	1.0000	1.2500	1.5000	1.7500
13	1.0833	1.3542	1.6250	1.8958
14	1.1666	1.4583	1.7500	2.0416
15	1.2500	1.5625	1.8750	2.1875
16	1.3333	1.6666	2.0000	2.3332
17	1.4166	1.7708	2.1250	2.4791
18	1.5000	1.8750	2.2500	2 6250
19	1.5833	1.9791	2.3750	2.7708
20	1.6666	2.0833	2.5000	2.9166
21	1.7500	2.1875	2.6250	3.0625
22	1.8333	2.2916	2.7500	3.2083
23	1.9166	2.3958	2.8750	3.3541
24	2.0000	2.5000	3.0000	3.5000
25	2.0833	2.6042	3.1250	3.6458
26	2.1666	2.7083	3.2500	3.7916
27	2.2500	2.8125	3.3750	3.9375
28	2.3333	2.9166	3.5000	4.0832
29	2.4166	3.0208	3.6250	4.2291
30	2.5000	3.1250	3.7500	4.3750

Leng.	2 Inch. Feet 1234.	2 Inc. 1 qu.Feet 1234.	2 Inc. 2 qu.Feet 1234.	2 Inc. 3 qu.Feet 1234.
1	0.1666	0.1875	0.2083	0.2292
2	0.3333	0.3750	0.4166	0.4583
3	0.5000	0.5625	0.6250	0.6875
4	0.6666	0.7500	0.8333	0.9166
5	0.8333	0.9375	1.0416	1.1458
6	1.0000	1.1250	1.2500	1.3750
7	1.1666	1.3125	1.4583	1.6041
8	1.3333	1.5000	1.6666	1.8333
9	1.5000	1.6875	1.8750	2.0625
10	1.6666	1.8750	2.0833	2.2916
11	1.8333	2.0625	2.2916	2.5208
12	2.0000	2.2500	2.5000	2.7500
13	2.1666	2.4375	2.7083	2.9791
14	2.3333	2.6250	2.9166	3.2083
15	2.5000	2.8125	3.1250	3.4375
16	2.6666	3.0000	3.3333	3.6666
17	2.8333	3.1875	3.5416	3.8958
18	3.0000	3.3750	3.7500	4.1250
19	3.1666	3.5625	3.9583	4.3541
20	3.3333	3.7500	4.1666	4.5833
21	3.5000	3.9375	4.3750	4.8125
22	3.6666	4.1250	4.5833	5.0416
23	3.8333	4.3125	4.7916	5.2708
24	4.0000	4.5000	5.0000	5.5000
25	4.1666	4.6875	5.2083	5.7291
26	4.3333	4.8750	5.4166	5.9583
27	4.5000	5.0625	5.6250	6.1875
28	4.6666	5.2500	5.8333	6.4166
29	4.8333	5.4375	6.0416	6.6458
30	5.0000	5.6250	6.2500	6.8750

Leng.	3 Inch. Feet. 1234.	3 Inc. 1 qu. Feet 1234.	3 Inc. 2 qu. Feet 1234.	3 Inc. 3 qu. Feet 1234.
1	0.2500	0.2708	0.2916	0.3125
2	0.5000	0.5416	0.5833	0.6250
3	0.7500	0.8125	0.8750	0.9375
4	1.0000	1.0833	1.1666	1.2500
5	1.2500	1.3541	1.4583	1.5625
6	1.5000	1.6250	1.7500	1.8750
7	1.7500	1.8958	2.0416	2.1875
8	2.0000	2.1666	2.3333	2.5000
9	2.2500	2.4375	2.6250	2.8125
10	2.5000	2.7083	2.9166	3.1250
11	2.7500	2.9791	3.2083	3.4375
12	3.0000	3.2500	3.5000	3.7500
13	3.2500	3.5208	3.7916	4.0625
14	3.5000	3.7916	4.0833	4.3750
15	3.7500	4.0625	4.3750	4.6875
16	4.0000	4.3333	4.6666	5.0000
17	4.2500	4.6041	4.9583	5.3125
18	4.5000	4.8750	5.2500	5.6250
19	4.7500	5.1458	5.5416	5.9375
20	5.0000	5.4166	5.8333	6.2500
21	5.2500	5.6875	6.1250	6.5625
22	5.5000	5.9583	6.4166	6.8750
23	5.7500	6.2291	6.7083	7.1875
24	6.0000	6.5000	7.0000	7.5000
25	6.2500	6.7708	7.2916	7.8125
26	6.5000	7.0416	7.5833	8.1250
27	6.7500	7.3125	7.8750	8.4375
28	7.0000	7.5833	8.1666	8.7500
29	7.2500	7.8541	8.4583	9.0625
30	7.5000	8.1250	8.7500	9.3750

Leng.	4 *Inch.* Feet. 1234.	4 *Inc.* 1 *qu.* Feet 1234.	4 *Inc.* 2 *qu.* Feet 1234.	4 *Inc.* 3 *qu.* Feet 1234.
1	0.3333	0.3542	0.3750	0.3958
2	0.6666	0.7083	0.7500	0.7916
3	1.0000	1.0625	1.1250	1.1875
4	1.3333	1.4166	1.5000	1.5833
5	1.6666	1.7708	1.8750	1.9791
6	2.0000	2.1250	2.2500	2.3750
7	2.3333	2.4791	2.6250	2.7708
8	2.6666	2.8333	3.0000	3.1666
9	3.0000	3.1875	3.3750	3.5625
10	3.3333	3.5416	3.7500	3.9583
11	3.6666	3.8958	4.1250	4.3541
12	4.0000	4.2500	4.5000	4.7500
13	4.3333	4.6041	4.8750	5.1458
14	4.6666	4.9583	5.2500	5.5416
15	5.0000	5.3125	5.6250	5.9375
16	5.3333	5.6666	6.0000	6.3333
17	5.6666	6.0208	6.3750	6.7291
18	6.0000	6.3750	6.7500	7.1250
19	6.3333	6.7291	7.1250	7.5208
20	6.6666	7.0833	7.5000	7.9166
21	7.0000	7.4375	7.8750	8.3125
22	7.3333	7.7916	8.2500	8.7083
23	7.6666	8.1458	8.6250	9.1041
24	8.0000	8.5000	9.0000	9.5000
25	8.3333	8.8541	9.3750	9.8958
26	8.6666	9.2083	9.7500	10.2916
27	9.0000	9.5625	10.1250	10.6875
28	9.3333	9.9166	10.5000	11.0833
29	9.6666	10.2708	10.8750	11.4792
30	10.0000	10.6250	11.2500	11.8750

Leng.	5 *Inches* Feet 1234.	5 *Inch.* 1 *qu.* Feet 1234.	5 *Inch.* 2 *qu.* Feet 1234.	5 *Inch.* 3 *qu.* Feet 1234.
1	0.4166	0.4375	0.4583	0.4791
2	0.8333	0.8750	0.9166	0.9583
3	1.2500	1.3125	1.3750	1.4375
4	1.6666	1.7500	1.8333	1.9166
5	2.0833	2.1875	2.2916	2.3958
6	2.5000	2.6250	2.7500	2.8750
7	2.9166	3.0625	3.2083	3.3541
8	3.3333	3.5000	3.6666	3.8333
9	3.7500	3.9375	4.1250	4.3125
10	4.1666	4.3750	4.5833	4.7916
11	4.5833	4.8125	5.0416	5.2708
12	5.0000	5.2500	5.5000	5.7500
13	5.4166	5.6875	5.9583	6.2291
14	5.8333	6.1250	6.4166	6.7083
15	6.2500	6.5625	6.8750	7.1875
16	6.6666	7.0000	7.3333	7.6666
17	7.0833	7.4375	7.7916	8.1458
18	7.5000	7.8750	8.2500	8.6250
19	7.9166	8.3125	8.7083	9.1041
20	8.3333	8.7500	9.1666	9.5833
21	8.7500	9.1875	9.6250	10.0625
22	9.1666	9.6250	10.0833	10.5416
23	9.5833	10.0625	10.5416	11.0208
24	10.0000	10.5000	11.0000	11.5000
25	10.4166	10.9375	11.4583	11.9791
26	10.8333	11.3750	11.9166	12.4583
27	11.2500	11.8125	12.3750	12.9375
28	11.6666	12.2500	12.8333	13.4166
29	12.0833	12.6875	13.2916	13.8958
30	12.5000	13.1250	13.7500	14.3750

Leng.	6 *Inches* Feet. 1234.	6 *Inch.* 1 *qu.* Feet 1234.	6 *Inch.* 2 *qu.* Feet 1234.	6 *Inch.* 3 *qu.* Feet 1234.
1	0.5000	0.5208	0.5416	0.5625
2	1.0000	1.0416	1.0833	1.1250
3	1.5000	1.5625	1.6250	1.6875
4	2.0000	2.0833	2.1666	2.2500
5	2.5000	2.6041	2.7083	2.8125
6	3.0000	3.1250	3.2500	3.3750
7	3.5000	3.6458	3.7916	3.9375
8	4.0000	4.1666	4.3333	4.5000
9	4.5000	4.6875	4.8750	5.0625
10	5.0000	5.2083	5.4166	5.6250
11	5.5000	5.7291	5.9583	6.1875
12	6.0000	6.2500	6.5000	6.7500
13	6.5000	6.7708	7.0416	7.3125
14	7.0000	7.2916	7.5833	7.8750
15	7.5000	7.8125	8.1250	8.4375
16	8.0000	8.3333	8.6666	9.0000
17	8.5000	8.8541	9.2083	9.5625
18	9.0000	9.3750	9.7500	10.1250
19	9.5000	9.8958	10.2916	10.6875
20	10.0000	10.4166	10.8333	11.2500
21	10.5000	10.9375	11.3750	11.8125
22	11.0000	11.4583	11.9166	12.3750
23	11.5000	11.9791	12.4583	12.9375
24	12.0000	12.5000	13.0000	13.5000
25	12.5000	13.0208	13.5416	14.0625
26	13.0000	13.5416	14.0833	14.6250
27	13.5000	14.0625	14.6250	15.1875
28	14.0000	14.5833	15.1666	15.7500
29	14.5000	15.1041	15.7083	16.3125
30	15.0000	15.6250	16.2500	16.8750

Leng.	7 Inches Feet 1234.	7 Inch. 1 qu. Feet 1234.	7 Inch. 2 qu. Feet 1234.	7 Inch. 3 qu. Feet 1234.
1	0.5833	0.6041	0.6250	0.6458
2	1.1666	1.2083	1.2500	1.2916
3	1.7500	1.8125	1.8750	1.9375
4	2.3333	2.4166	2.5000	2.5833
5	2.9166	3.0208	3.1250	3.2291
6	3.5000	3.6250	3.7500	3.8750
7	4.0833	4.2291	4.3750	4.5208
8	4.6666	4.8333	5.0000	5.1666
9	5.2500	5.4375	5.6250	5.8125
10	5.8333	6.0416	6.2500	6.4583
11	6.4166	6.6458	6.8750	7.1041
12	7.0000	7.2500	7.5000	7.7500
13	7.5833	7.8541	8.1250	8.3958
14	8.1666	8.4583	8.7500	9.0416
15	8.7500	9.0624	9.3750	9.6874
16	9.3333	9.6666	10.0000	10.3333
17	9.9166	10.2708	10.6250	10.9792
18	10.5000	10.8750	11.2500	11.6250
19	11.0833	11.4791	11.8750	12.2708
20	11.6666	12.0833	12.5000	12.9166
21	12.2500	12.6875	13.1250	13.5625
22	12.8333	13.2916	13.7500	14.2083
23	13.4166	13.8958	14.3750	14.8541
24	14.0000	14.5000	15.0000	15.5000
25	14.5833	15.1041	15.6250	16.1458
26	15.1666	15.7083	16.2500	16.7916
27	15.7500	16.3125	16.8750	17.4375
28	16.3333	16.9166	17.5000	18.0833
29	16.9166	17.5208	18.1250	18.7291
30	17.5000	18.1250	18.7500	19.3750

Leng.	8 *Inches* Feet 1234.	8 *Inch.* 1 *qu.* Feet 1234.	8 *Inch.* 2 *qu.* Feet 1234.	8 *Inch* 3. *qu.* Feet 1234.
1	0.6666	0.6875	0.7083	0.7291
2	1.3333	1.3750	1.4166	1.4583
3	2.0000	2.0625	2.1250	2.1875
4	2.6666	2.7500	2.8333	2.9166
5	3.3333	3.4375	3.5416	3.6458
6	4.0000	4.1250	4.2500	4.3750
7	4.6666	4.8125	4.9583	5.1041
8	5.3333	5.5000	5.6666	5.8333
9	6.0000	6.1875	6.3750	6.5625
10	6.6666	6.8750	7.0833	7.2916
11	7.3333	7.5625	7.7916	8.0208
12	8.0000	8.2500	8.5000	8.7500
13	8.6666	8.9375	9.2083	9.4791
14	9.3333	9.6250	9.9166	10.2083
15	10.0000	10.3125	10.6250	10.9375
16	10.6666	11.0000	11.3333	11.6666
17	11.3333	11.6875	12.0416	12.3958
18	12.0000	12.3750	12.7500	13.1250
19	12.6666	13.0625	13.4583	13.8541
20	13.3333	13.7500	14.1666	14.5833
21	14.0000	14.4375	14.8750	15.3125
22	14.6666	15.1250	15.5833	16.0416
23	15.3333	15.8125	16.2916	16.7708
24	16.0000	16.5000	17.0000	17.5000
25	16.6666	17.1875	17.7083	18.2291
26	17.3333	17.8750	18.4166	18.9583
27	18.0000	18.5625	19.1250	19.6875
28	18.6666	19.2500	19.8333	20.4166
29	19.3333	19.9375	20.5416	21.1458
30	20.0000	20.6250	21.2500	21.8750

Leng.	*9 Inches* Feet 1234.	*9 Inch.* 1 *qu.* Feet 1234.	*9 Inch.* 2 *qu.* Feet 1234	*9 Inch.* 3 *qu.* Feet 1234.
1	0.7500	0.7708	0.7916	0.8125
2	1.5000	1.5416	1.5833	1.6250
3	2.2500	2.3125	2.3750	2.4375
4	3.0000	3.0833	3.1666	3.2500
5	3.7500	3.8541	3.9583	4.0625
6	4.5000	4.6250	4.7500	4.8750
7	5.2500	5.3958	5.5416	5.6875
8	6.0000	6.1666	6.3333	6.5000
9	6.7500	6.9375	7.1250	7.3125
10	7.5000	7.7083	7.9166	8.1250
11	8.2500	8.4791	8.7083	8.9375
12	9.0000	9.2500	9.5000	9.7500
13	9.7500	10.0208	10.2916	10.5625
14	10.5000	10.7916	11.0833	11.3750
15	11.2500	11.5625	11.8750	12.1875
16	12.0000	12.3333	12.6666	13.0000
17	12.7500	13.1041	13.4583	13.8125
18	13.5000	13.8750	14.2500	14.6250
19	14.2500	14.6458	15.0416	15.4375
20	15.0000	15.4166	15.8333	16.2500
21	15.7500	16.1875	16.6250	17.0525
22	16.5000	16.9583	17.4166	17.8750
23	17.2500	17.7291	18.2083	18.6875
24	18.0000	18.5000	19.0000	19.5000
25	18.7500	19.2708	19.7916	20.3125
26	19.5000	20.0416	20.5833	21.1250
27	20.2500	20.8125	21.3750	21.9375
28	21.0000	21.5833	22.1666	22.7500
29	21.7500	22.3541	22.9583	23.5625
30	22.5000	23.1250	23.7500	24.3750

Leng.	10 *Inch.* Feet 1234.	10 *In.* 1 *qu.* Feet 1234.	10 *In.* 2 *qu.* Feet 1234.	10 *In.* 3 *qu.* Feet 1234.
1	0.8333	0.8541	0.8750	0.8958
2	1.6666	1.7083	1.7500	1.7916
3	2.5000	2.5625	2.6250	2.6875
4	3.3333	3.4166	3.5000	3.5833
5	4.1666	4.2708	4.3750	4.4791
6	5.0000	5.1250	5.2500	5.3750
7	5.8333	5.9791	6.1250	6.2708
8	6.6666	6.8333	7.0000	7.1666
9	7.5000	7.6875	7.8750	8.0525
10	8.3333	8.5416	8.7500	8.9583
11	9.1666	9.3958	9.6250	9.8541
12	10.0000	10.2500	10.5000	10.7500
13	10.8333	11.1041	11.3750	11.6458
14	11.6666	11.9583	12.2500	12.5416
15	12.5000	12.8125	13.1250	13.4375
16	13.3333	13.6666	14.0000	14.3333
17	14.1666	14.5208	14.8750	15.2291
18	15.0000	15.3750	15.7500	16.1250
19	15.8333	16.2291	16.6250	17.0208
20	16.6666	17.0833	17.5000	17.9166
21	17.5000	17.9375	18.3750	18.8125
22	18.3333	18.7916	19.2500	19.7083
23	19.1666	19.6458	20.1250	20.6041
24	20.0000	20.5000	21.0000	21.5000
25	20.8333	21.3541	21.8750	22.3958
26	21.6666	22.2083	22.7500	23.2916
27	22.5000	23.0625	23.6250	24.1875
28	23.3333	23.9166	24.5000	25.0833
29	24.1666	24.7708	25.3750	25.9791
30	25.0000	25.6250	26.2500	26.8750

Leng.	11 *Inch.* Feet 1234.	11 *In.* 1 *qu.* Feet 1234.	11 *In.* 2 *qu.* Feet 1234.	11 *In.* 3 *qu.* Feet 1234.
1	0.9166	0.9375	0.9583	0.9791
2	1.8333	1.8750	1.9166	1.9583
3	2.7500	2.8125	2.8750	2.9375
4	3.6666	3.7500	3.8333	3.9166
5	4.5833	4.6875	4.7916	4.8958
6	5.5000	5.6250	5.7500	5.8750
7	6.4166	6.5625	6.7083	6.8541
8	7.3333	7.5000	7.6666	7.8333
9	8.2500	8.4375	8.6250	8.8125
10	9.1666	9.3750	9.5833	9.7916
11	10.0833	10.3125	10.5416	10.7708
12	11.0000	11.2500	11.5000	11.7500
13	11.9166	12.1875	12.4583	12.7291
14	12.8333	13.1250	13.4166	13.7083
15	13.7500	14.0625	14.3750	14.6875
16	14.6666	15.0000	15.3333	15.6666
17	15.5833	15.9375	16.2916	16.6458
18	16.5000	16.8750	17.2500	17.6250
19	17.4166	17.8125	18.2083	18.6041
20	18.3333	18.7500	19.1666	19.5833
21	19.2500	19.6875	20.1250	20.5625
22	20.1666	20.6250	21.0833	21.5416
23	21.0833	21.5625	22.0416	22.5208
24	22.0000	22.5000	23.0000	23.5000
25	22.9166	23.4375	23.9583	24.4791
26	23.8333	24.3750	24.9166	25.4583
27	24.7500	25.3125	25.8750	26.4375
28	25.6666	26.2500	26.8333	27.4166
29	26.5833	27.1875	27.7916	28.3958
30	27.5000	28.1250	28.7500	29.3750

Leng.	12 *Inch.* Feet 1234.	12 *In.* 1 *qu.* Feet 1234.	12 *In.* 2 *qu.* Feet 1234.	12 *In.* 3 *qu.* Feet 1234.
1	1.0000	1.0208	1.0416	1.0625
2	2.0000	2.0416	2.0833	2.1250
3	3.0000	3.0625	3.1250	3.1875
4	4.0000	4.0833	4.1666	4.2500
5	5.0000	5.1042	5.2083	5.3125
6	6.0000	6.1250	6.2500	6.3750
7	7.0000	7.1458	7.2916	7.4375
8	8.0000	8.1666	8.3333	8.5000
9	9.0000	9.1875	9.3750	9.5625
10	10.0000	10.2083	10.4166	10.6250
11	11.0000	11.2291	11.4583	11.6875
12	12.0000	12.2500	12.5000	12.7500
13	13.0000	13.2708	13.5416	13.8125
14	14.0000	14.2916	14.5833	14.8750
15	15.0000	15.3125	15.6250	15.9375
16	15.0000	16.3333	16.6666	17.0000
17	17.0000	17.3541	17.7083	18.0625
18	18.0000	18.3750	18.7500	19.1250
19	19.0000	19.3958	19.7916	20.1875
20	20.0000	20.4166	20.8333	21.2500
21	21.0000	21.4375	21.8750	22.3125
22	22.0000	22.4583	22.9166	23.3750
23	23.0000	23.4792	23.9583	24.4375
24	24.0000	24.5000	25.0000	25.5000
25	25.0000	25.5208	26.0416	26.5625
26	25.0000	26.5416	27.0833	27.6250
27	27.0000	27.5625	28.1250	28.6875
28	28.0000	28.5833	29.1666	29.7500
29	29.0000	29.6042	30.2083	30.8125
30	30.0000	30.6250	31.2500	31.8750

Leng.	13 *Inch* Feet 1234.	13 *Inc.* 1 *qu.* Feet 1234.	13 *Inc.* 2 *qu.* Feet 1234.	13 *Inc.* 3 *qu.* Feet 1234.
1	1.0833	1.1042	1.1250	1.1458
2	2.1656	2.2083	2.2500	2.2916
3	3.2500	3.3125	3.3750	3.4375
4	4.3333	4.4166	4.5000	4.5833
5	5.4166	5.5208	5.6250	5.7291
6	6.5000	6.6250	6.7500	6.8750
7	7.5833	7.7292	7.8750	8.0208
8	8.6666	8.8333	9.0000	9.1666
9	9.7500	9.9375	10.1250	10.3125
10	10.8333	11.0416	11.2500	11.4583
11	11.9166	12.1458	12 3750	12.6041
12	13.0000	13.2500	13.5000	13.7500
13	14.0833	14.3541	14.6250	14.8958
14	15.1666	15.4583	15.7500	16.0416
15	16.2500	16.5625	16.8750	17.1875
16	17.3333	17.6666	18.0000	18.3333
17	18.4166	18.7708	19.1250	19 4791
18	19.5000	19.8750	20.2500	20.6250
19	20.5833	20.9791	21.3750	21.7708
20	21.6666	22.0833	22.5000	22.9166
21	22.7500	23.1875	23.6250	24.0625
22	23.8333	24.2916	24.7500	25.2083
23	24.9166	25.3958	25.8750	26.3541
24	26.0000	26.5000	27.0000	27.5000
25	27.0833	27.6041	28.1250	28.6458
26	28.1666	28.7083	29.2500	29.7916
27	29.2500	29.8125	30.3750	30.9375
28	30.3333	30.9166	31.5000	32.0833
29	31.4166	32.0208	32.6250	33.2291
30	32.5000	33.1250	33.7500	34.3750

Leng.	14 *Inch.* Feet 1234.	14 *Inc.* 1 *qu.* Feet 1234.	14 *Inc.* 2 *qu.* Feet 1234.	14 *Inc.* 3 *qu.* Feet 1234.
1	1.1666	1.1875	1.2083	1.2291
2	2.3333	2.3750	2.4156	2.4583
3	3.5000	3.5625	3.6250	3.6875
4	4.6666	4.7500	4.8333	4.9166
5	5.8333	5.9375	6.0416	6.1458
6	7.0000	7.1250	7.2500	7.3750
7	8.1666	8.3125	8.4583	8.6041
8	9.3333	9.5000	9.0666	9.8333
9	10.5000	10.6875	10.8750	11.0625
10	11.6666	11.8750	12.0833	12.2916
11	12.8333	13.0625	13.2916	13.5208
12	14.0000	14.2500	14.5000	14.7500
13	15.1666	15.4375	15.7083	15.9791
14	16.3333	16.6250	16.9166	17.2083
15	17.5000	17.8125	18.1250	18.4375
16	18.6666	19.0000	19.3333	19.6666
17	19.8333	20.1875	20.5416	20.8958
18	21.0000	21.3750	21.7500	22.1250
19	22.1666	22.5625	22.9583	23.3541
20	23.3333	23.7500	24.1666	24.5833
21	24.5000	24.9375	25.3750	25.8125
22	25.6666	26.1250	26.5833	27.0416
23	26.8333	27.3125	27.7916	28.2708
24	28.0000	28.5000	29.0000	29.5000
25	29.1666	29.6875	30.2083	30.7291
26	30.3333	30.8750	31.4166	31.9583
27	31.5000	32.0625	32.6250	33.1875
28	32.6666	33.2500	33.8333	34.4166
29	33.8333	34.4375	35.0416	35.6458
30	35.0000	35.6250	36.2500	36.8750

Leng.	15 Inch. Feet 1234.	15 Inc. 1 qu. Feet 1234.	15 Inc. 2 qu. Feet 1234.	15 Inc. 3 qu. Feet 1234.
1	1.2500	1.2708	1.2916	1.3125
2	2.5000	2.5416	2.5833	2.6250
3	3.7500	3.8125	3.8750	3.9375
4	5.0000	5.0833	5.1666	5.2500
5	6.2500	6.3541	6.4583	6.5625
6	7.5000	7.6250	7.7500	7.8750
7	8.7500	8.8958	9.0416	9.1875
8	10.0000	10.1666	10.3333	10.5000
9	11.2500	11.4375	11.6250	11.8125
10	12.5000	12.7083	12.9166	13.1250
11	13.7500	13.9791	14.2083	14.4375
12	15.0000	15.2500	15.5000	15.7500
13	16.2500	16.5208	16.7916	17.0625
14	17.5000	17.7916	18.0833	18.3750
15	18.7500	19.0625	19.3750	19.6875
16	20.0000	20.3333	20.6665	21.0000
17	21.2500	21.6041	21.9583	22.3125
18	22.5000	22.8750	23.2500	23.6250
19	23.7500	24.1458	24.5416	24.9375
20	25.0000	25.4166	25.8333	26.2500
21	26.2500	26.6875	27.1249	27.5625
22	27.5000	27.9583	28.4166	28.8750
23	28.7500	29.2291	29.7083	30.1875
24	30.0000	30.5000	31.0000	31.5000
25	31.2500	31.7708	32.2916	32.8125
26	32.5000	33.0416	33.5833	34.1250
27	33.7500	34.3125	34.8750	35.4375
28	35.0000	35.5833	36.1666	36.7500
29	36.2500	36.8541	37.4583	38.0625
30	37.5000	38.1250	38.7500	39.3750

Leng.	16 *Inch.* Feet 1234.	16 *In.* 1 *qu.* Feet 1234.	16 *In.* 2 *qu.* Feet 1234.	16 *In.* 3 *qu.* Feet 1234.
1	1.3333	1.3541	1.3750	1.3958
2	2.6666	2.7083	2.7500	2.7916
3	4.0000	4.0625	4.1250	4.1875
4	5.3333	5.4166	5.5000	5.5833
5	6.6666	6.7708	6.8750	6.9791
6	8.0000	8.1250	8.2500	8.3750
7	9.3333	9.4791	9.6250	9.7708
8	10.6666	10.8333	11.0000	11.1666
9	12.0000	12.1875	12.3750	12.5625
10	13.3333	13.5416	13.7500	13.9583
11	14.6666	14.8958	15.1250	15.3541
12	16.0000	16.2500	16.5000	16.7500
13	17.3333	17.6041	17.8750	18.1458
14	18.6666	18.9583	19.2500	19.5416
15	20.0000	20.3125	20.6250	20.9375
16	21.3333	21.6666	22.0000	22.3333
17	22.6666	23.0208	23.3750	23.7291
18	24.0000	24.3750	24.7500	25.1250
19	25.3333	25.7291	26.1250	26.5208
20	26.6666	27.0833	27.5000	27.9166
21	28.0000	28.4375	28.8750	29.3125
22	29.3333	29.7916	30.2500	30.7083
23	30.6666	31.1458	31.6250	32.1041
24	32.0000	32.5000	33.0000	33.5000
25	33.3333	33.8541	34.3750	34.8958
26	34.6666	35.2083	35.7500	36.2916
27	36.0000	36.5625	37.1250	37.6875
28	37.3333	37.9166	38.5000	39.0833
29	38.6666	39.2708	39.8750	40.4791
30	40.0000	40.6250	41.2500	41.8750

Leng.	17 *Inc.* Feet. 1234.	17 *Inc.* 1 *qu.* Feet 1234.	17 *Inc.* 2 *qu.* Feet 1234.	17 *Inc.* 3 *qu.* Feet 1234.
1	1.4166	1.4375	1.4583	1.4791
2	2.8333	2.8750	2.9166	2.9583
3	4.2500	4.3125	4.3750	4.4375
4	5.6666	5.7500	5.8333	5.9166
5	7.0833	7.1875	7.2916	7.3958
6	8.5000	8.6250	8.7500	8.8750
7	9.9166	10.0625	10.2083	10.3541
8	11.3333	11.5000	11.6666	11.8333
9	12.7500	12.9375	13.1250	13.3125
10	14.1666	14.3750	14.5833	14.7916
11	15.5833	15.8125	16.0416	16.2708
12	17.0000	17.2500	17.5000	17.7500
13	18.4166	18.6875	18.9583	19.2291
14	19.8333	20.1250	20.4166	20.7083
15	21.2500	21.5625	21.8750	22.1875
16	22.6666	23.0000	23.3333	23.6666
17	24.0833	24.4375	24.7916	25.1458
18	25.5000	25.8750	26.2500	26.6250
19	26.9166	27.3125	27.7083	28.0141
20	28.3333	28.7500	29.1666	29.5833
21	29.7500	30.1875	30.6250	31.0625
22	31.1666	31.6250	32.0833	32.5416
23	32.5833	33.0625	33.5416	34.0208
24	34.0000	34.5000	35.0000	35.5000
25	35.4166	35.9375	36.4583	36.9791
26	36.8333	37.3750	37.9166	38.4583
27	38.2500	38.8125	39.3750	39.9375
28	39.6666	40.2500	40.8333	41.4166
29	41.0833	41.6875	42.2916	42.8958
30	42.5000	43.1250	43.7500	44.3750

Leng.	18 *Inch.* Feet. 1234.	18 *Inc.* 1 *qu.* Feet 1234.	18 *Inc.* 2 *qu.* Feet 1234.	18 *Inc.* 3 *qu.* Feet 1234.
1	1.5000	1.5208	1.5416	1.5625
2	3.0000	3.0416	3.0833	3.1250
3	4.5000	4.5625	4.6250	4.6875
4	6.0000	6.0833	6.1666	6.2500
5	7.5000	7.6041	7.7083	7.8125
6	9.0000	9.1250	9.2500	9.3750
7	10.5000	10.6458	10.7916	10.9375
8	12.0000	12.1666	12.3333	12.5000
9	13.5000	13.6875	13.8750	14.0625
10	15.0000	15.2083	15.4166	15.6250
11	16.5000	16.7291	16.9583	17.1875
12	18.0000	18.2500	18.5000	18.7500
13	19.5000	19.7708	20.0416	20.3125
14	21.0000	21.2916	21.5833	21.8750
15	22.5000	22.8125	23.1250	23.4375
16	24.0000	24.3333	24.6666	25.0000
17	25.5000	25.8541	26.2083	26.5625
18	27.0000	27.3750	27.7500	28.1250
19	28.5000	28.8958	29.2916	29.6875
20	30.0000	30.4166	30.8333	31.2500
21	31.5000	31.9375	32.3750	32.8125
22	33.0000	33.4583	33.9166	34.3750
23	34.5000	34.9791	35.4583	35.9375
24	36.0000	36.5000	37.0000	37.5000
25	37.5000	38.0208	38.5416	39.0625
26	39.0000	39.5416	40.0833	40.6250
27	40.5000	41.0625	41.6250	42.1875
28	42.0000	42.5833	43.1666	43.7500
29	43.5000	44.1041	44.7083	45.3125
30	45.0000	45.6250	46.2500	46.8750

Leng.	19 *Inch* Feet 1234.	19 *Inc.* 1 *qu.* Feet 1234.	19 *Inc.* 2 *qu.* Feet 1234.	19 *Inc.* 3 *qu.* Feet 1234.
1	1.5833	1.6042	1.6250	1.6458
2	3.1666	3.2084	3.2500	3.2916
3	4.7500	4.8125	4.8750	4.9375
4	6.3333	6.4166	6.5000	6.5833
5	7.9166	8.0208	8.1250	8.2291
6	9.5000	9.6250	9 7500	9.8750
7	11.0833	11.2292	11.3750	11.5208
8	12.6666	12 8333	13.0000	13.1666
9	14.2500	14.4375	14.6250	14.8125
10	15.8333	16.0416	16.2500	16.4583
11	17.4166	17.6458	17 8750	18.1041
12	19.0000	19.2500	19.5000	19.7500
13	20.5833	20.8541	21.1250	21.3958
14	22.1666	22.4583	22.7500	23.0416
15	23.7500	24.0625	24.3750	24.6875
16	25.3333	25.6666	26.0000	26.3333
17	26.9166	27.2708	27.6250	27.9791
18	28.5000	28.8750	29.2500	29.6250
19	30.0833	30.4791	30.8750	31.2708
20	31.6666	32.0833	32.5000	32.9166
21	33.2500	33.6875	34.1250	34.5625
22	34.8333	35.2916	35.7500	36.2083
23	35.4166	36.8958	37.3750	37.8541
24	38.0000	38.5000	39.0000	39.5000
25	39.5833	40.1041	40.6250	41.1458
26	41.1666	41.7083	42.2500	42.7916
27	42.7500	43.3125	43.8750	44.4375
28	44.3333	44 9166	45.5000	45.0833
29	45.9166	46.5208	47 1250	47.729
30	47.5000	48.1250	48.7500	49.3750

Leng.	20 *Inch.* Feet 1234.	20 *Inc.* 1 *qu.* Feet 1234.	20 *Inc.* 2 *qu.* Feet 1234.	20 *Inc.* 3 *qu.* Feet 1234.
1	1.6666	1.6875	1.7083	1.7292
2	3.3333	3.3750	3.4166	3.4583
3	5.0000	5.0625	5.1250	5.1875
4	6.6666	6.7500	6.8333	6.9166
5	8.3333	8.4375	8.5416	8.6458
6	10.0000	10.1250	10.2500	10.3750
7	11.6666	11.8125	11.9583	12.1041
8	13.3333	13.5000	13.6666	13.8333
9	15.0000	15.1875	15.3750	15.5625
10	16.6666	16.8750	17.0833	17.2916
11	18.3333	18.5625	18.7916	19.0208
12	20.0000	20.2500	20.5000	20.7500
13	21.6666	21.9375	22.2083	22.4792
14	23.3333	23.6250	23.9166	24.2083
15	25.0000	25.3125	25.6250	25.9375
16	26.6666	27.0000	27.3333	27.6666
17	28.3333	28.6875	29.0416	29.3958
18	30.0000	30.3750	30.7500	31.1250
19	31.6666	32.0625	32.4583	32.8541
20	33.3333	33.7500	34.1666	34.5833
21	35.0000	35.4375	35.8750	36.3125
22	36.6666	37.1250	37.5833	38.0416
23	38.3333	38.8125	39.2916	39.7708
24	40.0000	40.5000	41.0000	41.5000
25	41.6666	42.1875	42.7083	43.2291
26	43.3333	43.8750	44.4166	44.9583
27	45.0000	45.5625	46.1250	46.6875
28	46.6666	47.2500	47.8333	48.4166
29	48.3333	48.9375	49.5416	50.1458
30	50.0000	50.6250	51.2500	51.8750

Leng.	*21 Inch.* Feet 1234.	*21 Inc. 1 qu.* Feet 1234.	*21 Inc. 2 qu.* Feet 1234.	*21 Inc. 3 qu.* Feet 1234.
1	1.7500	1.7708	1.7916	1.8125
2	3.5000	3.5416	3.5833	3.6250
3	5.2500	5.3125	5.3750	5.4375
4	7.0000	7.0833	7.1666	7.2500
5	8.7500	8.8541	8.9583	9.0625
6	10.5000	10.6250	10.7500	10.8750
7	12.2500	12.3958	12.5416	12.6875
8	14.0000	14.1666	14.3333	14.5000
9	15.7500	15.9375	16.1250	16.3125
10	17.5000	17.7083	17.9166	18.1250
11	19.2500	19.4791	19.7083	19.9375
12	21.0000	21.2500	21.5000	21.7500
13	22.7500	23.0208	23.2916	23.5625
14	24.5000	24.7916	25.0833	25.3750
15	26.2500	26.5625	26.8750	27.1875
16	28.0000	28.3333	28.6666	29.0000
17	29.7500	30.1041	30.4583	30.8125
18	31.5000	31.8750	32.2500	32.6250
19	33.2500	33.6458	34.0416	34.4375
20	35.0000	35.4166	35.8333	36.2500
21	36.7500	37.1875	37.6250	38.0525
22	38.5000	38.9583	39.4166	39.8750
23	40.2500	40.7291	41.2083	41.6875
24	42.0000	42.5000	43.0000	43.5000
25	43.7500	44.2708	44.7916	45.3125
26	45.5000	46.0416	46.5833	47.1250
27	47.2500	47.8125	48.3750	48.9375
28	49.0000	49.5833	50.1666	50.7500
29	50.7500	51.3541	51.9583	52.5625
30	52.5000	53.1250	53.7500	54.3750

Leng.	22 *Inch.* Feet 1234.	22 *In.* 1 *qu.* Feet 1234.	22 *In.* 2 *qu.* Feet 1234.	22 *In.* 3 *qu.* Feet 1234.
1	1.8333	1.8541	1.8750	1.8958
2	3.6666	3.7083	3.7500	3.7916
3	5.5000	5.5625	5.6250	5.6875
4	7.3333	7.4166	7.5000	7.5833
5	9.1666	9.2708	9.3750	9.4791
6	11.0000	11.1250	11.2500	11.3750
7	12.8333	12.9791	13.1250	13.2708
8	14.6666	14.8333	15.0000	15.1666
9	16.5000	16.6875	16.8750	17.0625
10	18.3333	18.5416	18.7500	18.9583
11	20.1666	20.3958	20.6250	20.8541
12	22.0000	22.2500	22.5000	22.7500
13	23.8333	24.1041	24.3750	24.6458
14	25.6666	25.9583	26.2500	26.5416
15	27.5000	27.8125	28.1250	28.4375
16	29.3333	29.6666	30.0000	30.3333
17	31.1666	31.5208	31.8750	32.2291
18	33.0000	33.3750	33.7500	34.1250
19	34.8333	35.2291	35.6250	36.0208
20	36.6666	37.0833	37.5000	37.9166
21	38.5000	38.9375	39.3750	39.8125
22	40.3333	40.7916	41.2500	41.7083
23	42.1666	42.6458	43.1250	43.6041
24	44.0000	44.5000	45.0000	45.5000
25	45.8333	46.3541	46.8750	47.3958
26	47.6666	48.2083	48.7500	49.2916
27	49.5000	50.0625	50.6250	51.1875
28	51.3333	51.9166	52.5000	53.0833
29	53.1666	53.7708	54.3750	54.9791
30	55.0000	55.6250	56.2500	56.8750

Leng.	23 *Inch.* Feet 1234.	23 *Inc.* 1 *qu.* Feet 1234.	23 *Inc.* 2 *qu.* Feet 1234.	23 *Inc.* 3 *qu.* Feet 1234.
1	1.9166	1.9375	1.9583	1.9791
2	3.8333	3.8750	3.9166	3.9583
3	5.7500	5.8125	5.8750	5.9375
4	7.6666	7.7500	7.8333	7.9166
5	9.5833	9.6875	9.7916	9.8958
6	11.5000	11.6250	11.7500	11.8750
7	13.4166	13.5625	13.7083	13.8541
8	15.3333	15.5000	15.6666	15.8333
9	17.2500	17.4375	17.6250	17.8125
10	19.1666	19.3750	19.5833	19.7916
11	21.0833	21-3125	21.5416	21.7708
12	23.0000	23.2500	23.5000	23.7500
13	24 9166	25.1875	25.4583	25.7291
14	26.8333	27.1250	27.4166	27.7083
15	28.7500	29.0625	29.3750	29.6875
16	30.6666	31.0000	31.3333	31.6666
17	32.5833	32.9375	33.2916	33.6458
18	34 5000	34.8750	35.2500	35.6250
19	36.4166	36.8125	37.2083	37.6041
20	38.3333	38.7500	39.1666	39.5833
21	40.2500	40.6875	41.1250	41.5625
22	42.1666	42.6250	43.0833	43.5416
23	44.0833	44.5625	45.0416	45.5208
24	46.0000	46.5000	47.0000	47.5000
25	47.9166	48.4375	48.9583	49.4791
26	49.8333	50.3750	50.9166	51.4583
27	51.7500	52.3125	52.8750	53.4375
28	53.6666	54.2500	54.8333	55.4166
29	55.5833	56.1875	56.7916	57.3958
30	57.5000	58.1250	58.7500	59.3750

Leng.	24 *Inch.* Feet. 1234.	24 *Inc.* 1 *qu.* Feet 1234.	24 *Inc.* 2 *qu.* Feet 1234.	24 *Inc.* 3 *qu.* Feet 1234.
1	2.0000	2.0208	2.0416	2.0625
2	4.0000	4.0416	4.0833	4.1250
3	6.0000	6.0625	6.1250	6.1875
4	8.0000	8.0833	8.1666	8.2500
5	10.0000	10.1041	10.2083	10.3125
6	12.0000	12.1250	12.2500	12.3750
7	14.0000	14.1458	14.2916	14.4375
8	16.0000	16.1666	16.3333	16.5000
9	18.0000	18.1875	18.3750	18.5625
10	20.0000	20.2083	20.4166	20.6250
11	22.0000	22.2291	22.4583	22.6875
12	24.0000	24.2500	24.5000	24.7500
13	26.0000	26.2708	26.5416	26.8125
14	28.0000	28.2916	28.5833	28.8750
15	30.0000	30.3125	30.6250	30.9375
16	32.0000	32.3333	32.6666	33.0000
17	34.0000	34.3541	34.7083	35.0625
18	36.0000	36.3750	36.7500	37.1250
19	38.0000	38.3958	38.7916	39.1875
20	40.0000	40.4166	40.8333	41.2500
21	42.0000	42.4375	42.8750	43.3125
22	44.0000	44.4583	44.9166	45.3750
23	46.0000	46.4791	46.9583	47.4375
24	48.0000	48.5000	49.0000	49.5000
25	50.0000	50.5208	51.0416	51.5625
26	52.0000	52.5416	53.0833	53.6250
27	54.0000	54.5625	55.1250	55.6875
28	56.0000	56.5833	57.1666	57.7500
29	58.0000	58.6041	59.2083	59.8125
30	60.0000	60.6250	61.2500	61.8750

Leng.	25 *Inch.* Feet 1234.	25 *Inc.* 1 *qu.* Feet 1234.	25 *Inc.* 2 *qu.* Feet 1234.	25 *Inc.* 3 *qu.* Feet 1234.
1	2.0833	2.1041	2.1250	2.1458
2	4.1666	4.2083	4.2500	4.2916
3	6.2500	6.3125	6.3750	6.4375
4	8.3333	8.4168	8.5000	8.5833
5	10.4166	10.5210	10.6250	10.7291
6	12.5000	12.6250	12.7500	12.8750
7	14.5833	14.7291	14.8750	15.0208
8	16.6666	16.8333	17.0000	17.1666
9	18.7500	18.9375	19.1250	19.3125
10	20.8333	21.0416	21.2500	21.4583
11	22.9166	23.1458	23.3750	23.6041
12	25.0000	25.2500	25.5000	25.7500
13	27.0833	27.3541	27.6250	27.8958
14	29.1666	29.4583	29.7500	30.0416
15	31.2500	31.5625	31.8750	32.1874
16	33.3333	33.6666	34.0000	34.3333
17	35.4166	35.7708	36.1250	36.4792
18	37.5000	37.8750	38.2500	38.6250
19	39.5833	39.9791	40.3750	40.7708
20	41.6666	42.0833	42.5000	42.9166
21	43.7500	44.1875	44.6250	45.0625
22	45.8333	46.2916	46.7500	47.2083
23	47.9166	48.3958	48.8750	49.3541
24	50.0000	50.5000	51.0000	51.5000
25	52.0833	52.6041	53.1250	53.6458
26	54.1666	54.7083	55.2500	55.7916
27	56.2500	56.8125	57.3750	57.9375
28	58.3333	58.9166	59.5000	60.0833
29	60.4166	61.0208	61.6250	62.2291
30	62.5000	63.1250	63.7500	64.3750

Leng.	26 *Inch.* Feet 1234.	26 *Inc.* 1 *qu.* Feet 1234.	26 *Inc.* 2 *qu.* Feet 1234.	26 *Inc.* 3 *qu.* Feet 1234.
1	2.1666	2.1875	2.2083	2.2292
2	4.3333	4.3750	4.4166	4.4583
3	6.5000	6.5625	6.6250	6.6875
4	8.6666	8.7500	8.8333	8.9166
5	10.8333	10.9375	11.0416	11.1458
6	13.0000	13.1250	13.2500	13.3750
7	15.1666	15.3125	15.4583	15.6041
8	17.3333	17.5000	17.6666	17.8333
9	19.5000	19.6875	19.8750	20.0625
10	21.6666	21.8750	22.0833	22.2916
11	23.8333	24.0525	24.2916	24.5208
12	26.0000	26.2500	26.5000	26.7500
13	28.1666	28.4375	28.7083	28.9791
14	30.3333	30.6250	30.9166	31.2083
15	32.5000	32.8125	33.1250	33.4375
16	34.6666	35.0000	35.3333	35.6666
17	36.8333	37.1875	37.5416	37.8958
18	39.0000	39.3750	39.7500	40.1250
19	41.1666	41.5625	41.9583	42.3541
20	43.3333	43.7500	44.1666	44.5833
21	45.5000	45.9375	46.3750	46.8125
22	47.6666	48.1250	48.5833	49.0416
23	49.8333	50.3125	50.7916	51.2708
24	52.0000	52.5000	53.0000	53.5000
25	54.1666	54.6875	55.2083	55.7291
26	56.3333	56.8750	57.4166	57.9583
27	58.5000	59.0625	59.6250	60.1875
28	60.6666	61.2500	61.8333	62.4166
29	62.8333	63.4375	64.0416	64.6458
30	65.0000	65.6250	66.2500	66.8750

Leng.	72 *Inch.* Feet 1234.	27 *In.* 1 *qu.* Feet 1234.	27 *In.* 2 *qu.* Feet 1234.	27 *In.* 3 *qu.* Feet 1234.
1	2.2500	2.2708	2.2916	2.3125
2	4.5000	4.5416	4.5833	4.6250
3	6.7500	6.8125	6.8750	6.9375
4	9.0000	9.0833	9.1666	9.2500
5	11.2500	11.3541	11.4583	11.5625
6	13.5000	13.6250	13.7500	13.8750
7	15.7500	15.8958	16.0416	16.1875
8	18.0000	18.1666	18.3333	18.5000
9	20.2500	20.4375	20.6250	20.8125
10	22.5000	22.7083	22.9166	23.1250
11	24.7500	24.9791	25.2083	25.4375
12	27.0000	27.2500	27.5000	27.7500
13	29.2500	29.5208	29.7916	30.0625
14	31.5000	31.7916	32.0833	32.3750
15	33.7500	34.0625	34.3750	34.6875
16	36.0000	36.3333	36.6666	37.0000
17	38.2500	38.6041	38.9583	39.3125
18	40.5000	40.8750	41.2500	41.6250
19	42.7500	43.1458	43.5416	43.9375
20	45.0000	45.4166	45.8333	46.2500
21	47.2500	47.6875	48.1250	48.5625
22	49.5000	49.9583	50.4166	50.8750
23	51.7500	52.2291	52.7083	53.1875
24	54.0000	54.5000	55.0000	55.5000
25	56.2500	56.7708	57.2916	57.8125
26	58.5000	59.0416	59.5833	60.1250
27	60.7500	61.3125	61.8750	62.4375
28	63.0000	63.5833	64.1666	64.7500
29	65.2500	65.8541	66.4583	67.0625
30	67.5000	68.1250	68.7500	69.3750

Leng.	28 *Inch.* Feet. 1234.	28 *Inc.* 1 *qu.* Feet 1234.	28 *Inc.* 2 *qu.* Feet 1234.	28 *Inc.* 3 *qu.* Feet 1234.
1	2.3333	2.3541	2.3750	2.3958
2	4.6666	4.7083	4.7500	4.7916
3	7.0000	7.0625	7.1250	7.1875
4	9.3333	9.4166	9.5000	9.5833
5	11.6666	11.7708	11.8750	11.9791
6	14.0000	14.1250	14.2500	14.3750
7	16.3333	16.4792	16.6250	16.7708
8	18.6666	18.8333	19.0000	19.1666
9	21.0000	21.1875	21.3750	21.5625
10	23.3333	23.5416	23.7500	23.9583
11	25.6666	25.8958	26.1250	26.3541
12	28.0000	28.2500	28.5000	28.7500
13	30.3333	30.6041	30.8750	31.1458
14	32.6666	32.9583	33.2500	33.5416
15	35.0000	35.3125	35.6250	35.9375
16	37.3333	37.6666	38.0000	38.3333
17	39.6666	40.0208	40.3750	40.7291
18	42.0000	42.3750	42.7500	43.1250
19	44.3333	44.7291	45.1250	45.5208
20	46.6666	47.0833	47.5000	47.9166
21	49.0000	49.4375	49.8750	50.3125
22	51.3333	51.7916	52.2500	52.7083
23	53.6666	54.1458	54.6250	55.1041
24	56.0000	56.5000	57.0000	57.5000
25	58.3333	58.8541	59.3750	59.8958
26	60.6666	61.2083	61.7500	62.2916
27	63.0000	63.5625	64.1250	64.6875
28	65.3333	65.9166	66.5000	67.0833
29	67.6666	68.2708	68.8750	69.4791
30	70.0000	70.6250	71.2500	71.8750

Leng.	29 *Inch.* Feet 1234.	29 *Inc.* 1 *qu.* Feet 1234.	29 *Inc.* 2 *qu.* Feet 1234.	29 *Inc.* 3 *qu.* Feet 1234.
1	2.4166	2.4375	2.4583	2.4791
2	4.8333	4.8750	4.9166	4.9583
3	7.2500	7.3125	7.3750	7.4375
4	9.6666	9.7500	9.8333	9.9166
5	12.0833	12.1875	12.2916	12.3958
6	14.5000	14.6250	14.7500	14.8750
7	16.9166	17.0625	17.2083	17.3541
8	19.3333	19.5000	19.6666	19.8333
9	21.7500	21.9375	22.1250	22.3125
10	24.1666	24.3750	24.5833	24.7916
11	26.5833	26.8125	27.0416	27.2708
12	29.0000	29.2500	29.5000	29 7500
13	31.4166	31.6875	31.9583	32.2291
14	33.8333	34.1250	34.4166	34.7083
15	36.2500	36.5625	36.8750	37.1875
16	38.6666	39.0000	39.3333	39.6666
17	41.0833	41.4375	41.7916	42.1458
18	43.5000	43.8750	44.2500	44.6250
19	45.9166	46.3125	46.7083	47.1041
20	48.3333	48.7500	49.1666	49.5833
21	50.7500	51.1875	51.6250	52.0625
22	53.1666	53.6250	54.0833	54.5416
23	55.5833	56.0625	56.5416	57.0208
24	58.0000	58.5000	59.0000	59.5000
25	60.4166	60.9375	61.4583	61.9791
26	62.8333	63.3750	64.9166	64.4583
27	65.2500	65.8125	66.3750	66.9375
28	67.6666	68.2500	68.8333	69.4166
29	70.0833	70.6875	71.2916	71.8958
30	72.5000	73.1250	73.7500	74.3750

Leng.	30 *Inc.* Feet. 1234.	30 *Inc.* 1 *qu.* Feet 1234.	30 *Inc.* 2 *qu.* Feet 1234.	30 *Inc.* 3 *qu.* Feet 1234.
1	2.5000	2.5208	2.5416	2.5625
2	5.0000	5.0416	5.0833	5.1250
3	7.5000	7.5625	7.6250	7.6875
4	10.0000	10.0833	10.1666	10.2500
5	12.5000	12.6042	12.7083	12.8125
6	15.0000	15.1250	15.2500	15.3750
7	17.5000	17.6458	17.7916	17.9375
8	20.0000	20.1666	20.3333	20.5000
9	22.5000	22.6875	22.8750	23.0625
10	25.0000	25.2083	25.4166	25.6250
11	27.5000	27.7291	27.9583	28.1875
12	30.0000	30.2500	30.5000	30.7500
13	32.5000	32.7708	33.0416	33.3125
14	35.0000	35.2916	35.5833	35.8750
15	37.5000	37.8125	38.1250	38.4375
16	40.0000	40.3333	40.6666	41.0000
17	42.5000	42.8541	43.2083	43.5625
18	45.0000	45.3750	45.7500	46.1250
19	47.5000	47.8958	48.2916	48.6875
20	50.0000	50.4166	50.8333	51.2500
21	52.5000	52.9375	53.3750	53.8125
22	55.0000	55.4583	55.9166	56.3750
23	57.5000	57.9792	58.4583	58.9375
24	60.0000	60.5000	61.0000	61.5000
25	62.5000	63.0208	63.5416	64.0625
26	65.0000	65.5416	66.0833	66.6250
27	67.5000	68.0625	68.6250	69.1875
28	70.0000	70.5833	71.1666	71.7500
29	72.5000	73.1041	73.7083	74.3125
30	75.0000	.756250	76.2500	76.8750

Leng.	31 *Inch.* Feet 1234.	31 *Inc.* 1 *qu.* Feet 1234.	31 *Inc.* 2 *qu.* Feet 1234.	31 *Inc.* 3 *qu.* Feet 1234.
1	2.5833	2.6041	2.6250	2.6458
2	5.1666	5.2083	5.2500	5.2916
3	7.7500	7.8125	7.8750	7.9375
4	10.3333	10.4166	10.5000	10.5833
5	12.9166	13.0208	13.1250	13.2291
6	15.5000	15.6250	15.7500	15.8750
7	18.0833	18.2291	18.3750	18.5208
8	20.6666	20.8333	21.0000	21.1666
9	23.2500	23.4375	23.6250	23.8125
10	25.8333	26.0416	26.2500	26.4583
11	28.4166	28.6458	28.8750	29.1041
12	31.0000	31.2500	31.5000	31.7500
13	33.5833	33.8541	34.1250	34.3958
14	36.1666	36.4583	36.7500	37.0416
15	38.7500	39.0624	39.3750	39.6874
16	41.3333	41.6666	42.0000	42.3333
17	43.9166	44.2708	44.6250	44.9792
18	46.5000	46.8750	47.2500	47.6250
19	49.0833	49.4791	49.8750	50.2708
20	51.6666	52.0833	52.5000	52.9166
21	54.2500	54.6875	55.1250	55.5625
22	56.8333	57.2916	57.7500	58.1083
23	59.4166	59.8958	60.3750	60.8541
24	62.0000	62.5000	63.0000	63.5000
25	64.5833	65.1041	65.6250	66.1458
26	67.1666	67.7083	68.2500	68.7916
27	69.7500	70.3125	70.8750	71.4375
28	72.3333	72.9166	73.5000	74.0833
29	74.9166	75.5208	76.1250	76.7291
30	77.5000	78.1250	78.7500	79.3750

Leng.	32 *Inch.* Feet 1234.	32 *Inc.* 1 *qu.* Feet 1234.	32 *Inc.* 2 *qu.* Feet 1234.	32 *Inc.* 3 *qu.* Feet 1234.
1	2.6666	2.6875	2.7083	2.7291
2	5.3333	5.3750	5.4166	5.4583
3	8.0000	8.0625	8.1250	8.1875
4	10.6666	10.7500	10.8333	10.9166
5	13.3333	13.4375	13.5416	13.6458
6	16.0000	16.1250	16.2500	16.3750
7	18.6666	18.8125	18.9583	19.1041
8	21.3333	21.5000	21.6666	21.8333
9	24.0000	24.1875	24.3750	24.5625
10	26.6666	26.8750	27.0833	27.2916
11	29.3333	29.5625	29.7916	30.0208
12	32.0000	32.2500	32.5000	32.7500
13	34.6666	34.9375	35.2083	35.4791
14	37.3333	37.6250	37.9166	38.2083
15	40.0000	40.3125	40.6250	40.9375
16	42.6666	43.0000	43.3333	43.6666
17	45.3333	45.6875	46.0416	46.3958
18	48.0000	48.3750	48.7500	49.1250
19	50.6666	51.0625	51.4583	51.8541
20	53.3333	53.7500	54.1666	54.5833
21	56.0000	56.4375	56.8750	57.3125
22	58.6666	59.1250	59.5833	60.0416
23	61.3333	61.8125	62.2916	62.7708
24	64.0000	64.5000	65.0000	65.5000
25	66.6666	67.1875	67.7083	68.2291
26	69.3333	69.8750	70.4166	70.9583
27	72.0000	72.5625	73.1250	73.6875
28	74.6666	75.2500	75.8333	76.4166
29	77.3333	77.9375	78.5416	79.1458
30	80.0000	80.6250	81.2500	81.8750

Leng.	33 Inch. Feet 1234.	33 In. 1 qu. Feet 1234.	33 In. 2 qu. Feet 1234.	33 In. 3 qu. Feet 1234.
1	2.7500	2.7708	2.7916	2.8125
2	5.5000	5.5416	5.5833	5.6250
3	8.2500	8.3125	8.3750	8.4375
4	11.0000	11.0833	11.1666	11.2500
5	13.7500	13.8541	13.9583	14.0625
6	16.5000	16.6250	16.7500	16.8750
7	19.2500	19.3958	19.5416	19.6875
8	22.0000	22.1666	22.3333	22.5000
9	24.7500	24.9375	25.1250	25.3125
10	27.5000	27.7083	27.9166	28.1250
11	30.2500	30.4791	30.7083	30.9375
12	33.0000	33.2500	33.5000	33.7500
13	35.7500	36.0208	36.2916	36.5625
14	38.5000	38.7916	39.0833	39.3750
15	41.2500	41.5625	41.8750	42.1875
16	44.0000	44.3333	44.6666	45.0000
17	46.7500	47.1041	47.4583	47.8125
18	49.5000	49.8750	50.2500	50.6250
19	52.2500	52.6458	53.0416	53.4375
20	55.0000	55.4166	55.8333	56.2500
21	57.7500	58.1875	58.6250	59.0625
22	60.5000	60.9583	61.4166	61.8750
23	63.2500	63.7291	64.2083	64.6875
24	66.0000	66.5000	67.0000	67.5000
25	68.7500	69.2708	69.7916	70.3125
26	71.5000	72.0416	72.5833	73.1250
27	74.2500	74.8125	75.3750	75.9375
28	77.0000	77.5833	78.1666	78.7500
29	79.7500	80.3541	80.9583	81.5625
30	82.5000	83.1250	83.7500	84.3750

Leng.	34 *Inch.* Feet. 1234.	34 *Inc.* 1 *qu.* Feet 1234.	34 *Inc.* 2 *qu.* Feet 1234.	34 *Inc.* 3 *qu.* Feet 1234.
1	2.8333	2.8541	2.8750	2.8958
2	5.6666	5.7083	5.7500	5.7916
3	8.5000	8.5625	8.6250	8.6875
4	11.3333	11.4166	11.5000	11.5833
5	14.1666	14.2708	14.3750	14.4791
6	17.0000	17.1250	17.2500	17.3750
7	19.8333	19.9792	20.1250	20.2708
8	22.6666	22.8333	23.0000	23.1666
9	25.5000	25.6375	25.8750	26.0625
10	28.3333	28.5416	28.7500	28.9583
11	31.1666	31.3958	31.6250	31.8541
12	34.0000	34.2500	34.5000	34.7500
13	36.8333	37.1041	37.3750	37.6458
14	39.6666	39.9583	40.2500	40.5416
15	42.5000	42.8125	43.1250	43.4375
16	45.3333	45.6666	46.0000	46.3333
17	48.1666	48.5208	48.8750	49.2291
18	51.0000	51.3750	51.7500	52.1250
19	53.8333	54.2291	54.6250	55.0208
20	56.6666	57.0833	57.5000	57.9166
21	59.5000	59.9375	60.3750	60.8125
22	62.3333	62.7916	63.2500	63.7083
23	65.1666	65.6458	66.1250	65.6041
24	68.0000	68.5000	69.0000	69.5000
25	70.8333	71.3541	71.8750	72.3958
26	73.6666	74.2083	74.7500	75.2916
27	76.5000	77.0625	77.6250	78.1875
28	79.3333	79.9166	80.5000	81.0833
29	82.1666	82.7708	83.3750	83.9791
30	85.0000	85.6250	86.2500	86.8750

A Table of Board Meaſure.

Leng.	35 *Inch.* Feet 1234.	35 *Inc.* 1 *qu.* Feet 1234.	35 *In.* 2 *qu.* Feet 1234.
1	2.9166	2 9375	2.9583
2	5.8333	5.8750	5.9166
3	8 7500	8.8125	8.8750
4	11.6666	11.7500	11.8333
5	14.5833	14.6875	14.7916
6	17.5000	17.6250	17.7500
7	20.4166	2 .5625	20.7083
8	23.3333	23.5000	23.6666
9	26.2500	26.4375	26.6250
10	29 1666	29.3750	29.5833
11	32.0833	32.3125	32.5416
12	35.0000	35.2500	35.5000
13	37.9166	38.1875	38.4583
14	40.8333	41.1250	41.4166
15	43.7500	44.0625	44.3750
16	46 6666	47.0000	47.3333
17	49.5833	49.9375	50.2916
18	52.5000	52.8750	53.2500
19	55 4166	55.8125	56.2083
20	58.3333	58.7500	59.1666
21	61.2500	61.6875	62.1250
22	64.1666	64.6250	65.0833
23	67.0833	67.5625	68.0416
24	70.0000	70.5000	71.0000
25	72.9166	73.4375	73.9583
26	75.8333	76.3570	76.9166
27	78.7500	79.3125	79.8750
28	81.6666	82.2500	82.8333
29	84.5833	85.1875	85.7916
30	87.5000	88.1250	88.7500

Leng.	35 *Inc.* 3 *qu.* Feet 1234.	36 *Inch.* Broad.
1	2.9791	3.0000
2	5.9583	6.0000
3	8.9375	9.0000
4	11.9166	12.0000
5	14.8958	15.0000
6	17.8750	18.0000
7	20.8541	21.0000
8	23.8333	24.0000
9	26.8125	27.0000
10	29.7916	30.0000
11	32.7708	33.0000
12	35.7500	36.0000
13	38.7291	39.0000
14	41.7083	42.0000
15	44.6875	45.0000
16	47.6666	48.0000
17	50.6458	51.0000
18	53.6250	54.0000
19	56.6041	57.0000
20	59.5833	60.0000
21	62.5625	63.0000
22	65.5416	66.0000
23	68.5208	69.0000
24	71.5000	72.0000
25	74.4791	75.0000
26	77.4583	78.0000
27	80.4375	81.0000
28	83.4166	84.0000
29	86.3958	87.0000
30	89.3750	90.0000

CHAP. VI.

The Table of Board Meaſure applied to the Glaſiers uſe.

LET there be given a Window to be glazed that hath ſix Lights, every Light three Foot in Length, and 7 Inches broad, to find the Content by the Table in Foot Meaſure. Add the length of the ſix Lights into one Number, which will be eighteen Feet for the length of the ſix Lights: Which breadth and length enter the Table as is before taught in the Uſe of meaſuring Boards, you will find to anſwer ſeven Inches in breadth, and eighteen Foot in length, ten Feet and 5000 parts of 10000 of a Foot; which by the Table of the Decimal parts of a Foot, will be found half a Foot more.

The breadth being ſeven Inches, and one quarter, and the ſame length, the Content will be found ten Foot, 8750 parts of 10000 of a Foot, which is three quarters and half a quarter of a Foot more.

The breadth being ſeven Inches and an half, and the ſame length, Content will be found eleven Foot and 250 parts of 10000 of a Foot; which is one quarter of a Foot more.

The

The breadth being ſeven Inches and three quarters, and the ſame length, the Content will be found Eleven Foot, 6250 parts of 10000 of a Foot, which is half a Foot, and half a Quarter more.

The Second Example.

Let there be given four Lights to be meaſured, every Light being four Foot and an half in length, and nineteen Inches in breadth; the length of the four Lights added together, is eighteen Foot. Look nineteen Inches, the breadth on the head of the Table, and from eighteen Foot in length; the Content will be found twenty eight Foot, and 5000 Parts of 10000 of a Foot.

The Third Example.

Let there be given three Windows to be meaſured, having three Lights a-piece, every Light being four Foot in length, the breadth twenty eight Inches, the length of the nine Lights added together, make thirty ſix Foot: Find out the breadth, as before on the head of the Table, and from thirty Foot in length you ſhall find Seventy Foot; and from ſix Foot, the remainder of the length, fourteen Foot, which added together, make eighty four Feet, the Content.

If you take one half of the length, which is eighteen Feet, the Content will be found forty two Feet; which doubled, makes eighty four Feet, as before.

The Fourth Example.

Let there be given five Windows to be meaſured, every Window having four Lights a-piece, every Light being three Foot nine Inches in length; which added together in one length, make ſeventy five Foot, the breadth of every Light three Foot two Inches, one quarter. Enter the Table at a Yard in breadth, and from 30 Foot in length, you will find ninety Foot; which doubled for thirty Foot in length more, makes 180 Foot; and for fifteen Foot, the remainder of the length, you will find forty five Foot. Which added to the former Sum 180, makes 225 Foot; for the remainder of the breadth above a Yard, which is two Inches and one quarter. Look it on the head of the Table, and from thirty Foot in length will anſwer five Foot, 6200 parts of 10000 of a Foot, which doubled for thirty Foot of length more, makes eleven Foot, 250 parts of 10000 of a Foot. Then for fifteen Foot more of the length remaining, will be found two Foot, 8125 parts of 10000, which added to the laſt double Number, makes 14 Foot, 6025 parts of 10000 of a Foot, which added to 225 Foot, makes 239 Foot, 0625 parts of 10000 of a Foot, the Content of the five Windows of Glaſs.

By which you may ſee, that a piece of Glaſs ſeventy five Foot in Length, and two Inches one quarter in breadth, the Content will be fourteen Foot, and 0625 parts of 10000 of a Foot.

CHAP.

CHAP. VII.

The Uſe of the Table of the Square of unequal Sided Timber.

BEFORE we proceed to ſhew the Uſe of the Table of Timber Meaſure, it will not be amiſs to ſhew the Uſe of the Table of the Square of unequal Sided Timber, whereby any piece of Timber, being broader one way than the other, the Square of that piece may be found to half a quarter of an Inch.

Which Table begins with 2 Inches ſquare, and from two Inches ſquare, to two Inches and an half, and to three Inches, and three Inches and an half; and ſo proceeds from half Inch to half Inch to thirty ſix Inches, and are ſo many Tables as there are half Inches to thirty ſix Inches.

In which Table you may ſee at the beginning 2 Inches ſquare to ſtand between two parallel Lines; which figure of 2 is the leſſer ſide of the piece of Timber you deſire to know the ſquare of: Underneath the parallel Lines you may ſee three Ranks, or Columns of Figures; the firſt of which towards the left-hand is divided with a black Line, and is the breadth, or the other ſide of the piece of Timber to be found, and proceeds downward from half Inch to half Inch, to the double of the leſſer ſide, not

exceeding

ceeding a Yard in breadth ; the figure of 2 ſtand-g between the other figures, ſignifieth two quar-ers, or half an Inch.

The ſecond Column ſheweth the ſquare of the iece in Inches, anſwering to every Inch and half ch of breadth. The third Column ſheweth the uarters of Inches, and if a ſmall prick ſtand by any gure in the third Column, it ſheweth the ſquare of he piece of Timber to be half a quarter more, as y Example will appear.

The Firſt Example.

Let there be given a piece of Timber, whoſe quare we deſire to know : Let the thickneſs of the iece be nine Inches, the breadth ſixteen Inches. Vith nine Inches the thickneſs of the piece of Tim-er enter the Table, and you ſhall find nine Inches quare ſtand between two parallel Lines ; and in the irſt Column to the left-hand under the ſame, ſeek ut ſixteen Inches the breadth, from thence in a rait Line in the ſecond Column, you ſhall find welve Inches, which ſhews that the ſquare of a iece of Timber 9 Inches thick, and 16 Inches road, is twelve Inches.

The Second Example.

Let there be given a piece of Timber, the thick-eſs 9 Inches and an half, the breadth fourteen nches and an half, look the thickneſs of the piece ine Inches and an half ſquare between two parallel Lines. And underneath, in the firſt Column to the left hand leſt-hand, from fourteen Inches and an half, you ſhall find in the ſecond Column eleven Inches, and the figure of two with a point after it, ſhews two quarters and half quarter more.

So that a piece of Timber in thickneſs, nine Inches and an half, and in breadth fourteen Inches and an half, the ſquare will be found eleven Inches and half, and an half quarter.

The Third Example.

Let there be given a piece of Timber, the thickneſs ſixteen Inches, the breadth twenty eight Inches, look in the Table for ſixteen Inches ſquare, and in the firſt Column, underneath to the left-hand, you find twenty eight Inches the breadth, and in a ſtraight Line in the ſecond Column you will find 21 Inches, and the third Column no figure but a prick, which ſheweth half a quarter of an Inch more. By which it appears that a piece of Timber ſixteen Inches in thickneſs, and twenty eight Inches in breadth, the ſquare will be found twenty one Inches, and half a quarter of an Inch more the ſquare.

The Fourth Example.

Let there be given a piece of Timber, the thickneſs twenty two Inches and an half, the breadth 31 Inches and half. The ſquare of that piece by the Table will be found twenty ſix Inches and an half, and half a quarter.

The Fifth Example.

Let there be given a piece of Timber, the thickneſs twenty nine Inches and half, the breadth 34 Inches, the ſquare of that piece of Timber will be found by the Table 31 Inches three quarters.

The Sixth Example.

Let there be given a piece of Timber, the thickneſs thirty two Inches, the breadth thirty ſix Inches, the ſquare of that piece of Timber will be found by the Table, thirty three Inches three quarters and half a quarter.

By the help of this Table, may the Square of any unequal Sided piece of Timber be found, that is, three foot and an half, or four foot, or five or ſix foot in breadth.

The Seventh Example.

Let there be given a piece of Timber, the thickneſs three foot, the breadth three foot nine Inches, to find the ſquare, do thus.

Take half the thickneſs of thirty ſix, which is eighteen Inches. and half the breadta forty five Inches, which is twenty two Inches and an half. With eighteen Inches half the thickneſs enter the Table, and from twenty two Inches and an half in a ſtraight Line, you ſhall find twenty Inches the ſquare of one quarter of the piece, which doubled, will be three foot four Inches, the ſquare of the piece of Timber.

If it were required to meaſure a piece of Timber whoſe ſquare is as before three foot four Inches, which is too large for the Table of Timber Meaſure, being but to a Yard ſquare. Take as before was found, twenty Inches for the half of the ſquare of the piece, and let the length be twenty ſeven Foot, to know the Content: Look in the Table of Timber Meaſure for twenty Inches ſquare, and from 27 foot in length, you ſhall find ſeventy five Foot, the Content of one quarter of the piece of Timber, which multiplied by 4 gives the Content of the whole piece of Timber 300 Foot. Obſerving this Rule you may meaſure any piece of Timber of 4 5 or 6 Foot ſquare, which ſeldom are found.

The making of the Tables.

THE making of the Tables of Board and Timber Meaſure, any that have Arithmetick may examine and try any Example in the Book on theſe Grounds following.

In the firſt Example of Board Meaſure was given a Board fifteen Inches in breadth, and ſixteen Foot in length, the Content of that Board was found to be twenty Foot.

The Proportion is, as 144 to 15, the breadth in Inches, ſo 192, the length in Inches, to twenty Foot, the Content of the Board.

Then according to the Golden Rule, multiply fifteen, the breadth in Inches, by 192, the length in Inches, the Product will be 2880; which divide by 144, the Quotient will be twenty Foot, the Content of the Board.

Or thus.

As twelve Inches, to the breadth in Inches, ſo the length in Feet, to the Content in Feet.

Multiply fifteen Inches the breadth, by ſixteen Foot the length, the Product will be 240, which divided by twelve, the Quotient will be twenty Foot, the Content as before.

In the firſt Example of Timber Meaſure, the piece given to be meaſured is fifteen Foot in length, and ſix Inches in breadth, and ſix Inches in depth; the proportion will be.

As 1, to the breadth in Inches, ſo the depth in Inches, to the Content of the baſe in Inches.

Wherefore multiply 6 Inches, the breadth, by 6 Inches, the depth, the product will be 36 Inches, which ſhould be divided by the firſt term, but one doth not multiply nor divide.

Then as 1728, to thirty ſix the Baſe in Inches; ſo 180 the length in Inches, to three Foot ſeventy five parts of an hundred of a Foot, the Content of the piece of Timber.

Or,

As twelve Inches to the breadth in Inches, ſo the depth in Inches, to a fourth Number

Then as 144 to that fourth Number, ſo the length in Inches, to the Content in Feet.

Then as 144 to that fourth Number, ſo the length in Inches, to the Content in Feet.

I the third Example of Timber Meaſure, the piece given is fifteen Inches ſquare, and twenty foot in length.

Wherefore multiply fifteen Inches the breadth, by fifteen Inches the depth; the Product is 225 the Baſe in Inches.

Then as 1728, is to 225 the Baſe in Inch, ſo is 240 the length in Inches, to thirty one Foot twenty five parts of an hundred of a Foot, being one quarter of a Foot, the Content of the piece of Timber.

Or thus.

As twelve Inches, to the breadth in Inches; ſo the depth in Inches, to a fourth Number.

Then as 144 to that fourth Number, ſo the length in Inches to the Content in Feet.

Either of thoſe ways here ſet down, you may make uſe of to try any particuler in the Tables, or make the like.

CHAP.

CHAP. VIII.

A Table of the ſquare of unequal Sided Timber.

2 Inch. ſq.		
2	2	1
3	2	2
2	2	3
4	2	3.
2 ½		
3	2	3
2	2	3.
4	3	0.
2	3	1
5	3	2
3 Inch. ſq.		
2	3	1
4	3	2
2	3	2.
5	3	3
2	4	0
6	4	1
3 ½		
4	3	3
2	3	3.
5	4	0.
2	4	1
6	4	2
2	4	3
7	4	3.
4 Inc. ſq.		
2	4	1
5	4	2
2	4	3
6	4	3.
2	5	0.
7	5	1
2	5	2
8	5	2.
4 ½		
5	4	3
2	4	3.
6	5	1
2	5	1.
7	5	2.
2	5	3
8	6	0
2	6	0.
9	6	1
5 Inc. ſq.		
2	5	1
6	5	2
2	5	2.
7	5	3.
2	6	0.
8	6	1
2	6	2
9	6	3
2	6	3.
10	7	0.
5 ½		
6	5	3
2	5	3.
7	6	0.
2	6	1.
8	6	2.
2	6	3
9	7	0
2	7	1
10	7	1.
2	7	2
11	7	3
6 Inc. ſq.		
2	6	1
7	6	2
2	6	3
8	6	3.
2	7	0.
9	7	1.
2	7	2
10	7	3
2	7	3.
11	8	0.
2	8	1
12	8	2
6 ½		
7	6	3
2	6	3.
8	7	1
2	7	1.
9	7	2.
2	7	3
10	8	0
2	8	1
11	8	1.
2	8	2.
12	8	3
2	9	0
13	9	0.
7 Inc. ſq.		
2	7	1
8	7	2
2	7	2.
9	7	3.
2	8	0.
10	8	1
2	8	2.
11	8	3
2	9	0
12	9	0.

2	9	1
13	9	2
2	9	2.
14	9	3.

7 ½

8	7	3
2	7	3.
9	8	0.
2	8	1.
10	8	2.
2	8	3.
11	9	0
2	9	1
12	9	2
2	9	2.
13	9	3
2	10	0
14	10	1
2	10	1.
15	10	2

8 Inch. ſq.

2	8	1
9	8	2
2	8	3
10	8	3.
2	9	0.
11	9	1.
2	9	2
12	9	3
2	10	0

13	10	0.
2	10	1.
14	10	2
2	10	3
15	10	3.
2	11	0.
16	11	1

8 ½

9	8	3
2	8	3.
10	9	1
2	9	1.
11	9	2.
2	9	3
12	10	0
2	10	1
13	10	2
2	10	2.
14	10	3.
2	11	0
15	11	1
2	11	1.
16	11	2.
2	11	3
17	12	0

9 Inch. ſq.

2	9	1
10	9	2
2	9	2.
11	9	3.

2	10	0.
12	10	1.
2	10	2
13	10	3
2	11	0
14	11	1
2	11	1.
15	11	2.
2	11	3.
16	12	0
2	12	0.
17	12	1.
2	12	2
18	12	3

9 ½

10	9	3
2	10	0
11	10	0.
2	10	1.
12	10	2.
2	10	3.
13	11	0
2	11	1
14	11	2
2	11	3
15	11	3.
2	12	0.
16	12	1
2	12	2
17	12	2.
2	12	3.

18	13	0
2	13	1
19	13	1.

10 Inc. ſq.

2	10	1
11	10	2.
2	10	3
12	10	3.
2	11	0.
13	11	1.
2	11	2.
14	11	3
2	12	0
15	12	1
2	12	1.
16	12	2.
2	12	3
17	13	0
2	13	1
18	13	1.
2	13	2
19	13	3
2	13	3.
20	14	0.

10 ½

11	10	3
2	10	3.
12	11	1
2	11	1.

13	11	2.
2	11	3.
14	12	0.
2	12	1
15	12	2
2	12	3
16	12	3.
2	13	0.
17	13	1
2	13	2
18	13	3
2	13	3.
19	14	0
2	14	1
20	14	2
2	14	2.
21	14	3

11 Inc. ſq.

2	11	1
12	11	2
2	11	2.
13	11	3.
2	12	0.
14	12	1.
2	12	2.
15	12	3
2	13	0
16	13	1
2	13	1.
17	13	2.
2	13	3
18	14	0
2	14	1
19	14	1.
2	14	2.
20	14	3
2	15	0
21	15	0.
2	15	1.
22	15	2.

11 ½

12	11	3.
2	11	3.
13	12	0.
2	12	1.
14	12	2.
2	12	3.
15	13	0.
2	13	1
16	13	2
2	13	3
17	13	3.
2	14	0.
18	14	1.
2	14	2
19	14	3
2	14	3.
20	15	0.
2	15	1
21	15	2
2	15	2.
22	15	3.
2	16	0
23	16	1

12 Inc. ſq.

2	12	1
13	12	2
2	12	3
14	12	3.
2	13	0.
15	13	1.
2	13	2
16	13	3.
2	14	0
17	14	1
2	14	2
18	14	2.
2	14	3.
19	15	0
2	15	1
20	15	2
2	15	2.
21	15	3.
2	16	0.
22	16	1
2	16	1.
23	16	2
2	16	3
24	16	3.

12 ½

13	12	3
2	13	0
14	13	0.
2	13	1.
15	13	2.
2	13	3.
16	14	0.
2	14	1
17	14	2
2	14	3
18	15	0
2	15	1
19	15	1.
2	15	2
20	15	3
2	16	0
21	16	0.
2	16	1.
22	16	2
2	16	3
23	16	3.
2	17	0.
24	17	1.
2	17	2
25	17	2.

13 Inc. ſq.

2	13	1
14	13	2
2	13	2.
15	13	3.

2	14	0.
16	14	1.
2	14	2.
17	14	3.
2	15	0
18	15	1
2	15	2
19	15	2.
2	15	3.
20	16	0
2	16	1
21	16	2
2	16	2.
22	16	3.
2	17	0.
23	17	1
2	17	1.
24	17	2
2	17	3
25	18	0
2	18	0.
26	18	1.

13 ½

14	13	3
2	14	0
15	14	1
2	14	1.
16	14	2.
2	14	3.
17	15	0.

2	15	1.
18	15	2
2	15	3
19	16	0
2	16	1
20	16	1.
2	16	2.
21	16	3
2	17	0
22	17	1
2	17	1.
23	17	2
2	17	3
24	18	0
2	18	0.
25	18	1.
2	18	2
26	18	3
2	18	3.
27	19	0.

14 Inc. ſq.

2	14	1
15	14	2
2	14	3
16	14	3.
2	15	0.
17	15	1.
2	15	2.
18	15	3.
2	16	0.

19	16	1
2	16	2
20	16	3
2	16	3.
21	17	0.
2	17	1.
22	17	2
2	17	3
23	17	3.
2	18	0.
24	18	1
2	18	2
25	18	2.
2	18	3.
26	19	0
2	19	1
27	19	1.
2	19	2.
28	19	3

14 ½

15	14	3
2	15	0
16	15	1
2	15	1.
17	15	2.
2	15	3.
18	16	0.
2	16	1.
19	16	2.
2	16	3

20	17	0
2	17	1
21	17	1.
2	17	2.
22	17	3.
2	18	0
23	18	1
2	18	1.
24	18	2.
2	18	3
25	19	0
2	19	0.
26	19	1.
2	19	2
27	19	3
2	19	3.
28	20	0.
2	20	1
29	20	2

15 Inc. ſq.

2	15	1
16	15	2
2	15	3
17	15	3.
2	16	0.
18	16	1.
2	16	2.
19	16	3.
2	17	0.
20	17	1.

2	17	2
21	17	3
2	17	3.
22	18	0.
2	18	1.
23	18	2
2	18	3
24	18	3.
2	19	0.
25	19	1.
2	19	2
26	19	3
2	19	3.
27	20	0.
2	20	1
28	20	2
2	20	2.
29	20	3
2	21	0
30	21	0.

15 ½

16	15	3
2	15	3.
17	16	0.
2	16	1.
18	16	2.
2	16	3.
19	17	0.
2	17	1.
20	17	2.

2	17	3.
21	18	0.
2	18	1
22	18	1.
2	18	2.
23	18	3
2	19	0
24	19	1
2	19	1.
25	19	2.
2	19	3.
26	20	0
2	20	1
27	20	1.
2	20	2.
28	20	3
2	21	0
29	21	0.
2	21	1.
30	21	2
2	21	3
31	21	3.

16 Inc. ſq.

2	16	1
17	16	2
2	16	3
18	16	3.
2	17	0.
19	17	1.
2	17	2.

20	17	3.
2	18	0.
21	18	1
2	18	2
22	18	3
2	18	3
23	19	0
2	19	1
24	19	2
2	19	3
25	20	0
2	20	0.
26	20	1.
2	20	2
27	20	3
2	21	0
28	21	0.
2	21	1.
29	21	2
2	21	3
30	21	3.
2	22	0
31	22	1
2	22	1.
32	22	2.

16 ½

17	16	3
2	17	0
18	17	1
2	17	1.

19	17	2.
2	17	3
20	18	0.
2	18	1.
21	18	2.
2	18	3.
22	19	0
2	19	1
23	19	2
2	19	2.
24	19	3.
2	20	0
25	20	1
2	20	2
26	20	2.
2	20	3.
27	21	0.
2	21	1
28	21	2
2	21	2.
29	21	3.
2	22	0
30	22	1
2	22	1.
31	22	2
2	22	3
32	22	3.
2	23	0.
33	23	1.

17 Inches ſquare.	
2	17 1
18	17 2
2	17 2.
19	17 3.
2	18 0.
20	18 1.
2	18 2
21	18 3.
2	19 0.
22	19 1
2	19 2
23	19 3
2	19 3.
24	20 0.
2	20 1.
25	20 2.
2	20 3
26	21 0
2	21 0.
27	21 1.
2	21 2.
28	21 3.
2	22 0
29	22 0.
2	22 1.
30	22 2
2	22 3
31	22 3.
2	23 0.
32	23 1
2	23 2
33	23 2.
2	23 3
34	24 0

17 ½	
18	17 3
2	18 0
19	18 1
2	18 2
20	18 2.
2	18 3.
21	19 0.
2	19 1.
22	19 2.
2	19 3
23	20 0
2	20 1
24	20 2
2	20 2.
25	20 3.
2	21 0
26	21 1
2	21 2
27	21 3
2	21 3.
28	22 0.
2	22 1
29	22 2
2	22 3
30	22 3.
2	23 0
31	23 1
2	23 2
32	23 2.
2	23 3
33	24 0
2	24 0.
34	24 1.
2	24 2
35	24 3

18 Inc. ſq.	
2	18 1
19	18 2
2	18 3
20	18 3.
2	19 0.
21	19 1.
2	19 2.
22	19 3.
2	20 0
23	20 1
2	20 2
24	20 3
2	21 0
25	21 0.
2	21 1.
25	21 2.
2	21 3
27	22 0
2	22 1
28	22 1.
2	22 2.
29	22 3
2	23 0
30	23 1
2	23 1.
31	23 2.
2	23 3
32	24 0
2	24 0.
33	24 1.
2	24 2
34	24 3
2	24 3.
35	25 0
2	25 1
36	25 1.

18 ½		
19	18	3
2	19	0
20	19	1
2	19	1.
21	19	2.
2	19	3.
22	20	0.
2	20	1.
23	20	2.
2	20	3
24	21	0
2	21	1
25	21	2
2	21	2.
26	21	3.
2	22	0
27	22	1
2	22	2
28	22	3
2	22	3.
29	23	0.
2	23	1
30	23	2
2	23	3.
31	23	3.
2	24	0.
32	24	1
2	24	2
33	24	2.
2	24	3.
34	25	0
2	25	1
35	25	1.
2	25	2.
36	25	3

19 Inch. ſq.		
2	19	1
20	19	2
2	19	2.
21	19	3.
2	20	0.
22	20	1.
2	20	2.
23	20	3.
2	21	0.
24	21	1
2	21	2
25	21	3
2	22	0
26	22	0.
2	22	1.
27	22	2.
2	22	3
28	23	0
2	23	1
29	23	1.
2	23	2.
30	23	3.
2	24	0
31	24	1
2	24	1.
32	24	2.
2	24	3
33	25	0
2	25	0.
34	25	1.
2	25	2
35	25	3
2	26	0
36	26	0.

19 ½		
20	19	3
2	19	3.
21	20	0.
2	20	1.
22	20	2.
2	20	3.
23	21	0.
2	21	1.
24	21	2.
2	21	3
25	22	0
2	22	1.
26	22	2
2	22	2.
27	22	3.
2	23	0
28	23	1.
2	23	2
29	23	3
2	23	3.
30	24	0.
2	24	1.
31	24	2
2	24	3
32	25	0
2	25	0.
33	25	1.
2	25	2.
34	25	3
2	25	3.
35	26	0.
2	26	1
36	26	2

20 Inches ſquare.

2	20	1
21	20	2
2	20	3
22	21	0
2	21	0.
23	21	1.
2	21	2.
24	21	3.
2	22	0.
25	22	1
2	22	2
26	22	3
2	23	0
27	23	1
2	23	1.
28	23	2.
2	23	3.
29	24	0
2	24	1
30	24	2
2	24	2.
31	24	3.
2	25	0.
32	25	1
2	25	2
33	25	2.
2	25	3.
34	26	0
2	25	1
35	26	1.
2	26	2.
36	26	3.

20 ½

21	20	3
2	20	3.
22	21	0.
2	21	1.
23	21	2.
2	21	3.
24	22	0.
2	22	1.
25	22	2.
2	22	3
26	23	0
2	23	1
27	23	2
2	23	2.
28	23	3.
2	24	0.
29	24	1
2	24	2
30	24	3
2	25	0
31	25	0.
2	25	1.
32	25	2.
2	25	3
33	26	0
2	26	0.
34	26	1.
2	26	2
35	26	3
2	26	3.
36	27	0.

21 Inc. ſq.

2	21	1
22	21	2
2	21	2.
23	21	3.
2	22	0.
24	22	1.
2	22	2.
25	22	3.
2	23	0.
26	23	1.
2	23	2
27	23	3
2	24	0
28	24	1
2	24	1.
29	24	2.
2	24	3.
30	25	0
2	25	1
31	25	2
2	25	2.
32	25	3.
2	26	0.
33	26	1
2	26	2
34	26	2.
2	25	3.
35	27	0.
2	27	1
36	27	2

21 ½

22	21	3
2	22	0
23	22	0.
2	22	1.
24	22	2.
2	22	3.
25	23	0.
2	23	1.
26	23	2.
2	23	3.
27	24	0
2	24	1
28	24	2

2	24	3
29	24	3.
2	25	0.
30	25	1.
2	25	2
31	25	3
2	26	0
32	26	0.
2	26	1.
33	26	2.
2	26	3
34	27	0
2	27	0.
35	27	1.
2	27	2.
36	27	3

22 Inc. ſq.

2	22	1
23	22	2
2	22	3
24	22	3.
2	23	0.
25	23	1.
2	23	2.
26	23	3.
2	24	0.

27	24	1
2	24	2
28	24	3
2	25	0
29	25	1
2	25	1.
30	25	2.
2	25	3.
31	26	0
2	26	1
32	26	2
2	26	3
33	26	3.
2	27	0.
34	27	1
2	27	2
35	27	3
2	27	3.
36	28	0.

22 ½

23	22	3
2	23	0
24	23	1
2	23	2
25	23	2.
2	23	3.
26	24	0.

2	24	1.
27	24	2.
2	24	3
28	25	0
2	25	1
29	25	2
2	25	3
30	26	0
2	26	0.
31	26	1.
2	26	2.
32	26	3
2	27	0.
33	27	1
2	27	1.
34	27	2.
2	27	3.
35	28	0
2	28	1
36	28	1.

23 Inc. ſq.

2	23	1
24	23	2
2	23	3
25	23	3.
2	24	0.
26	24	1.

2	24	2.
27	24	3.
2	25	0.
28	25	1.
2	25	2
29	25	3
2	26	0
30	26	1
2	26	2
31	26	2.
2	26	3.
32	27	0.
2	27	1
33	27	2
2	27	3
34	27	3.
2	28	0.
35	28	1.
2	28	2
36	28	3

23 ½

24	23	3
2	23	3.
25	24	0.
2	24	1.
26	24	2.
2	24	3.

27	25	0.
2	25	1.
28	25	2.
2	25	3.
29	26	0
2	26	1
30	26	2
2	26	3
31	26	3.
2	27	0
32	27	1.
2	27	2.
33	27	3
2	28	0
34	28	1
2	28	1.
35	28	2.
2	28	3.
36	29	0

24 Inc. ſq.

2	24	1
25	24	2
2	24	3
26	24	3.
2	25	0.
27	25	1.
2	25	2.
28	25	3.
2	26	0.
29	26	1.
2	26	2
30	26	3
2	27	0
31	27	1
2	27	2
32	27	3
2	27	3.
33	28	0.
2	28	1
34	28	2
2	28	3
35	29	0
2	29	0.
36	29	1.

24 ½

25	24	3
2	24	3.
26	25	1
2	25	1.
27	25	2.
2	25	3.
28	26	0.
2	26	1.
29	26	2.
2	26	3.
30	27	0
2	27	1
31	27	2
2	27	3
32	28	0
2	28	0.
33	28	1.
2	28	2.
34	28	3
2	29	0
35	29	1
2	29	1.
36	29	2.

25 Inc. ſq.

2	25	1
26	25	2
2	25	3
27	25	3.
2	26	0.
28	26	1.
2	26	2.
29	26	3.
2	27	0.
30	27	1.
2	27	2.
31	27	3.
2	28	0
32	28	1
2	28	2
33	28	3
2	28	3..
34	29	0..
2	29	1
35	29	2
2	29	3
36	30	0

25 ½

26	25	3
2	26	0
27	26	0.
2	26	1.
28	26	2.
2	26	3.
29	27	0.
2	27	1.
30	27	2.
2	27	3
31	28	0
2	28	1
32	28	2
2	28	3
33	29	0
2	29	0.
34	29	1.
2	29	2.
35	29	3.
2	30	0
36	30	1

26 Inc. ſq.

2	26	1
27	26	2
2	26	3
28	26	3.
2	27	0.
29	27	1.
2	27	3
30	27	3.
2	28	0.
31	28	1.
2	28	2
32	28	3
2	29	0
33	29	1
2	29	2
34	29	2.
2	29	3.
35	30	0.
2	30	1.
36	30	2

26 ½

27	26	3
2	27	0
28	27	1
2	27	1.
29	27	2.
2	27	3.
30	28	0.
2	28	1.
31	28	2.
2	28	3.
32	29	0
2	29	1
33	29	2
2	29	3
34	30	0
2	30	1
35	30	1.
2	30	2.
36	30	3.

27 Inc. ſq.

2	27	1.
28	27	2
2	27	3
29	27	3:
2	28	0.
30	28	1.
2	28	2.
31	28	3.
2	29	0.
32	29	1.
2	29	2
33	29	3
2	30	0
34	30	1
2	30	2
35	30	3
2	30	3.
36	31	0.

27 ½

28	27	3
2	27	3.
29	28	0.
2	28	1.
30	28	2.
2	28	3.
31	29	0.
2	29	1.
32	29	2.
2	29	3.
33	30	0.
2	30	1
34	30	2
2	30	3
35	31	0
2	31	1
36	31	2

28 Inc. ſq.

2	28	1
29	28	2
2	28	3
30	29	0
2	29	0.
31	29	1.
2	29	2.
32	29	3.
2	30	0.
33	30	1.
2	30	2.
34	30	3
2	31	0
35	31	1
2	31	2
36	31	3

28 ½

29	28	3
2	29	0
30	29	1
2	29	1.
31	29	2.
2	29	3.
32	30	0.

2	30	1.
33	30	2.
2	30	3.
34	31	0.
2	31	1.
35	31	2.
2	31	3.
36	32	0

29 Inc. ſq.

2	29	0.
30	29	2
2	29	2.
31	29	3.
2	30	0.
32	30	1.
2	30	2.
33	30	3.
2	31	0.
34	31	1.
2	31	2
35	31	3.
2	32	0
36	32	1

29 ½

30	29	3.
2	29	3.
31	30	1

2	30	1.
32	30	2.
2	30	3.
33	31	0.
2	31	2
34	31	2.
2	31	3.
35	32	0.
2	32	1.
36	32	2.

30 Inc. ſq.

2	30	1
31	30	2
2	30	3
32	31	0
2	31	1
33	31	1.
2	31	3
34	31	3.
2	32	0.
35	32	1.
2	32	2.
36	32	3

30 ½

31	30	3.
2	31	0
32	31	1

2	31	2
33	31	3
2	31	3.
34	32	0.
2	32	1.
35	32	2.
2	32	3.
36	33	0.

31 Inc. ſq.

2	31	1
32	31	2
2	31	3
33	31	3.
2	32	0.
34	32	1.
2	32	2.
35	32	3.
2	33	0.
36	33	1.

31 ½

32	31	3
2	31	3.
33	32	0.
2	32	2
34	32	3
2	33	0
35	33	1

2	33	1.
36	33	2.

32 Inc. ſq.

2	32	1
33	32	2
2	32	3
34	33	0
2	33	1
35	33	2
2	33	3
36	33	3.

32 ½

33	32	3
2	33	0
34	33	1
2	33	2
35	33	3
2	34	0
36	34	1

33 Inc. ſq.

2	33	1
34	33	2
2	33	[illegible]
35	33	3.
2	34	0.
36	34	1.

33 ½			34 ½			35 ½		
34	33	3	35	34	2.	36	35	2
2	34	0	2	34	3.	36 Inc. ſq.		
35	34	1	36	35	1			
2	34	2	35 Inc. ſq.					
36	34	2.	2	35	1			
34 Inc. ſq.			36	35	2			
2	34	1						
35	34	2						
2	34	2.						
36	35	0						

◆

CHAP.

CHAP. IX.

50 Foot. Price.			1 Foot. Price.		2 Foot. Price.		3 Foot. Price.			4 Foot. Price.		5 Foot. Price.		
s.	d.	q.	d.	q.	d.	q.	s.	d.	q.	s.	d.	s.	d.	q.
1	0	2	0	1	0	2	0	0	3	0	1	0	1	1
2	1	0	0	2	1	0	0	1	2	0	2	0	2	2
3	1	2	0	3	1	2	0	2	1	0	3	0	3	3
4	2	0	1	0	2	0	0	3	0	0	4	0	5	0
5	2	2	1	1	2	2	0	3	3	0	5	0	6	1
6	3	0	1	2	3	0	0	4	2	0	6	0	7	2
7	3	2	1	3	3	2	0	5	1	0	7	0	8	3
8	4	0	2	0	4	0	0	6	0	0	8	0	10	0
9	4	2	2	1	4	2	0	6	3	0	9	0	11	1
10	5	0	2	2	5	0	0	7	2	0	10	1	0	2
11	5	2	2	3	5	2	0	8	1	0	11	1	1	3
12	6	0	3	0	6	0	0	9	0	1	0	1	3	0
13	6	2	3	1	6	2	0	9	3	1	1	1	4	1
14	7	0	3	2	7	0	0	10	2	1	2	1	5	2
15	7	2	3	3	7	2	0	11	1	1	3	1	6	3
16	8	0	4	0	8	0	1	0	0	1	4	1	8	0
17	8	2	4	1	8	2	1	0	3	1	5	1	9	1
18	9	0	4	2	9	0	1	1	2	1	6	1	10	2
19	9	2	4	3	9	2	1	2	1	1	7	1	11	3
20	10	0	5	0	10	0	1	3	0	1	8	2	1	0

50 Foot. Price.			6 Foot. Price.			7 Foot. Price.			8 Foot. Price.		9 Foot. Price.		
s.	d.	q.	s.	d.	q.	s.	d.	q.	s.	d.	s.	d.	q.
1	0	2	0	01	2	0	01	3	0	02	0	02	1
2	1	0	0	03	0	0	03	2	0	04	0	04	2
3	1	2	0	04	2	0	05	1	0	06	0	06	3
4	2	0	0	06	0	0	07	0	0	08	0	09	0
5	2	2	0	07	2	0	08	3	0	10	0	11	1
6	3	0	0	09	0	0	10	2	1	00	1	01	2
7	3	2	0	10	2	1	00	1	1	02	1	03	3
8	4	0	1	00	0	1	02	0	1	04	1	06	0
9	4	2	1	01	2	1	03	3	1	06	1	08	1
10	5	0	1	03	0	1	05	2	1	08	1	10	2
11	5	2	1	04	2	1	07	1	1	10	2	00	3
12	6	0	1	06	0	1	09	0	2	00	2	03	0
13	6	2	1	07	2	1	10	3	2	02	2	05	1
14	7	0	1	09	0	2	00	2	2	04	2	07	2
15	7	2	1	10	2	2	02	1	2	06	2	09	3
16	8	0	2	00	0	2	04	0	2	08	3	00	0
17	8	2	2	01	2	2	05	3	2	10	3	02	1
18	9	0	2	03	0	2	07	2	3	00	3	04	2
19	9	2	2	04	2	2	09	1	3	02	3	06	3
20	10	0	2	06	0	2	11	0	3	04	3	09	0

100 Foot. Price.			10 Foot. Price.			20 Foot. Price.			30 Foot. Price.			40 Foot. Price.	
s.	*d.*	*q.*	*s.*	*d.*	*q.*	*s.*	*d.*	*q.*	*s.*	*d.*	*q.*	*s.*	*d.*
1	0	2	0	02	2	0	05	0	00	07	2	00	10
2	1	0	0	05	0	0	10	0	01	03	0	01	08
3	1	2	0	07	2	1	03	0	01	10	2	02	06
4	2	0	0	10	0	1	08	0	02	06	0	03	04
5	2	2	1	00	2	2	01	0	03	01	2	04	02
6	3	0	1	03	0	2	06	0	03	09	0	05	00
7	3	2	1	05	2	2	11	0	04	04	2	05	10
8	4	0	1	08	0	3	04	0	05	00	0	06	08
9	4	2	1	10	2	3	09	0	05	07	2	07	06
10	5	0	2	01	0	4	02	0	06	03	0	08	04
11	5	2	2	03	2	4	07	0	06	10	2	09	02
12	6	0	2	06	0	5	00	0	07	06	0	10	00
13	6	2	2	08	2	5	05	0	08	01	2	10	10
14	7	0	2	11	0	5	10	0	08	09	0	11	08
15	7	2	3	01	2	6	03	0	09	04	2	12	06
16	8	0	3	04	0	6	08	0	10	00	0	13	04
17	8	2	3	06	2	7	01	0	10	07	2	14	02
18	9	0	3	09	0	7	06	0	11	03	0	15	00
19	9	2	3	11	2	7	11	0	11	10	2	15	10
20	10	0	4	02	0	8	04	0	12	06	0	16	08

The Uſe of the foregoing Table.

IN the firſt Column of the Page is the price of fifty Foot of Timber, from twelve pence halfpenny the price of one Tun, or fifty Foot, to twenty Shillings and ten-pence the Tun. The next Column is the price of one Foot of Timber anſwering to the ſeveral prices in the firſt Column, and on the head

head of the Table is expreſſed the price from one foot price to ten feet price, and after to 20, 30, 40 foot price.

If the piece of one Tun of Timber, containing fifty foot, be ſold for twelve ſhillings ſix pence, what is ſeven foot of Timber worth at that price? From twelve ſhillings ſix pence, the price of fifty foot, in the firſt Column of the Page in a ſtraight thence in the Column of ſeven foot price, is one ſhilling nine pence, the price of ſeven foot.

At the ſame price, what is ſeventeen foot worth? having found as before the price of ſeven foot, look in the ſame manner the price of ten foot, which you will find in the Table to be two ſhillings ſix pence; which added to the price of 7 foot, produceth four ſhillings three pence, the price of ſeventeen foot.

If the price were twenty five ſhillings the Tun, what is ſeven foot worth? At twelve ſhillings ſix pence the Tun, ſeven foot was found as before, one ſhilling nine pence the price twenty five ſhillings, being double to twelve ſhillings ſix pence; Therefore the piece of ſeven foot being doubled, is three ſhillings ſix pence for ſeven foot, and the price of 17 foot will be found eight ſhillings ſix pence.

If the price of a Tun of Timber, containing fifty foot, be ſold for ſixteen ſhillings eight pence; what is the price of thirty foot at that rate? Look in the Table for the price in a ſtraight Line, thence in the Column of 30 foot price, is 10 ſhillings the Content.

If the price were thirty three ſhillsngs four pence the Tun, which price is double to ſixteen ſhillings eight pence, the Content of thirty foot will be twenty ſhillings. The like may be found of any other price, by adding any two prices together, as in the uſe of the Table of the price of 100 foot of Board.

CHAP. X.

Common Errors in Meaſuring of Timber.

BEFORE we proceed to the Meaſuring of Timber, it will be neceſſary to ſhew what Errors many Men, who undertake to meaſure Timber, fall into. Thus if a piece of Timber be broader one way than the other, to find the ſquare of the piece, they add both the ſides together, and take half of that number for the ſquare of the piece. How far from truth this way of finding the ſquare of the piece of Timber is, will evidently appear: For look what the difference of the two ſides is, ſo much the Buyer loſeth. A ſquare piece of Timber all the length of the piece ſo meaſured, whoſe ſquare is one half of the difference of the two ſides. Which to demonſtrate, let the figure G be the end of a piece of Timber to be meaſured, whoſe breadth is twenty four Inches, and thickneſs twelve Inches. According to that erroneous way, if we add the two ſides, twenty four Inches, and twelve Inches together, the Sum is thirty ſix Inches, the half of which is eighteen Inches, which is commonly taken for the ſide of the ſquare of ſuch a piece of Timber.

This piece of Timber in the truth, as it is, is not fully ſeventeen Inches ſquare; for there is but two Foot of Timber in every Foot of length in the piece.

As ſuppoſe a piece of Timber, having the ſame breadth and thickneſs as the figure G, being twelve foot in length, if you conſider the piece of Timber, there can be but twenty four foot of Timber in twelve

twelve foot of length; if the ſquare were eighteen Inches, and the ſame length twelve foot there would be twenty ſeven foot of Timber in the ſame piece; by which doth appear, that for every eight foot of Timber in the piece, the Buyer hath according to the Error of eighteen Inches ſquare, he muſt pay for nine foot, which is a piece of Timber ſix Inches ſquare; the whole length of the piece of Timber ſo meaſured, whoſe ſide is half the difference, as by the figure D will more plainly appear to prove the Error.

Behold the former Figure G, which as we ſaid before, was ſuppoſed to be end of a piece of Timber to be meaſured, whoſe breadth is 24 Inches, and thickneſs twelve Inches. If we take off the figure G a piece of Timber by the prickt Line, being 12 Inches in breadth, and ſix Inches in thickneſs: If we apply the piece of Timber taken off rhe figure G, by the prickt line on the upper part of this figure D, being 12 Inches in breadth, and ſix Inches in thickneſs, there will appear a defect or want of a piece of Timber ſix Inches ſquare, ſuch as the prickt lines in this figure do ſhew, to make up the figure eighteen Inches ſquare, being a loſs to the Buyer the ninth part of the piece of Timher ſo meaſured; and if the difference be more, the greater the loſs; if leſs the difference, the leſs will be the loſs to the Buyer.

The ſecond Error is in meaſuring of round Timber, which is commonly called Girth-meaſure, which they meaſure thus:

Firſt they take the length in feet of the Tree, or ſo much of the ſame as they allow for Timber to be meaſured; then find out the middle of the piece, and with a line gird the piece about, and fold the ſame line in four parts, and then apply the fourth part of the line to the Rule ; and look what the length is found in Inches and Parts, that is taken for the ſquare of the piece, and ſo meaſured. As the former Error was a loſs to the Buyer ſo this brings loſs to the Seller, as by the Figure H you may perceive more than by many words. Which Circle we will ſuppoſe to be the end or middle of a piece of Timber to be meaſured, whoſe circumference is fifty ſix Inches ; the one quarter of which circumference is fourteen Inches, which is commonly taken for the ſide of the ſquare of ſuch a piece of Timber. In which Circle is drawn a ſquare Figure with prickt lines, whoſe four ſides are equal in length to the Circle. By which figure you may perceive that the Square figure with prickt lines, is not ſo large as the Circle, though you know not the difference. For in truth, if the Circle be fifty ſix Inches about, as here we ſuppoſe it to be, the ſide of a ſquare equal to the ſuperficial content of the Circle, will be found fifteen Inches, and ſeventy nine parts of one Inch, divided into an hundred parts, which is three quarters of an Inch, and ſomething more, which may be reſolved by the Golden Rule thus :

As 10000,
To the Circumference 56 Inches :

So 2821,
To 15 Inches 79 parts of an Inch, divided into 100, the ſide of the ſquare.

I have heard ſome Carpenters ſay, that they did believe there was ſomething more in a round piece of Timber ſo meaſured as before : But, ſay they, by that time we have paid for the ſquaring of the piece

piece, we find but little profit in buying of it round: For all we hew off, according to your meaſuring, is a loſs of ſo much Timber as we pay for. It is true, when a round piece of Timber is meaſured, it is taken all for Timber, and if any be hewed away, Reaſon will tell you, that there needs muſt be leſs in it. I hope no Carpenter will hew away ſo much to waſte, but that kind of Meaſure will pay for the ſquaring with profit.

Thoſe two Errors being great; for the firſt of them, the Table of the ſquaring unequal Sided Timber will help.

And for the latter, having the Circumference of the piece of round Timber, the Proportion ſet down as before, will give the ſquare of any Circle, or ſo near as may be.

CHAP. XI.

The Table of the Fractional Parts of a Foot of Timber as they are expreſſed in the uſual Terms of half quarters and quarters, and the like, according to Decimal Arithmetick, in Primes, Seconds and Thirds, as in the Tables of Board and Timber Meaſure.

HALF a quarter of a Foot is thus expreſſed	1250
One quarter	2500
Quarter and half quarter.	3750
Half a Foot.	5000
Half a Foot and a quarter.	6250
Three quarters.	7500
Three quarters, and half-quarter.	8750
One Foot.	10000

The Uſe of this Table.

If a piece of Timber be given to be meaſured, and found by the Table, the Content of the piece of Timber in Feet, and there remains a Fraction, as in the third Example of Tlmber meaſure, the Fraction is found 2500 parts of 10000 of a Foot. If you look that Fraction in this Table, you ſhall find the Content of that Fraction to be one quarter of a Foot of Timber; and the like may be found of any other Fraction. Which note, if you cannot find in the Table the exact Sum, then take the next leaſt Sum for the Content of the Fraction.

CHAP.

CHAP. XII.

The Deſcription and Uſe of the Table of Timber Meaſure.

THE firſt Page in the Table begins on the Head with three Inches ſquare, and proceeds to three Inches and an half ſquare, and to 4 Inches, and 4 Inches and half ſquare; and proceeds on the Head of every Page from Inch to half Inch, to 36 Inches ſquare.

In every Page is five Columns of Figures, the firſt on the left-hand begins at the Figure of 1, and encreaſeth downward from 1 Foot to 30, and ſheweth the length in Feet of any piece to be meaſured to 30 Foot in length.

The ſecond and third Columns ſhews the Content in Feet, and parts of a Foot, in a ſtraight Line from every Foot in length in the firſt Column of the Page.

And ſo of the fourth and fifth Columns, as by Example will appear.

The Firſt Example.

Suppoſe the Figure A be a piece of Timber to be meaſured, being ſix Inches ſquare and 15 Foot in length, to find the Content. Look 6 Inches ſquare on the Head of the Table, which you ſhall find on the Head of the ſecond Page of the Table, and in a ſtraight Line from 15 Foot, the length in the firſt Column of the Page, the Content will be found in the Column of the Square, 3 Foot and 7500 parts of 10000 of a Foot more; which by the Table of the Decimal parts of a Foot, will be found 3 quarters of a Foot. So the Content of the whole piece of Timber is 3 Foot 3 quarters of a Foot of Timber.

The Second Example.

Suppoſe a piece of Timber 9 Inches ſquare, and 18 Foot in length, look the ſquare 9 Inches on the Head of the Table, and for 18 Foot, the length of the firſt Column of the Page, in the common Place of Meeting in the Column of 9 Inches ſquare, is ten Foot, 1250 parts of 10000 of a Foot, the Content will be ten Foot and half a quarter.

If a piece of Timber were 9 Inches and an half ſquare, and the ſame length, the Content will be found eleven Foot, 2812 parts of 10000 of a Foot, which Fraction is one quarter of a Foot and ſomething more.

At ten Inches ſquare, and the ſame length, the Content will be found 12 Foot, 5000 pa-ts of 10000 of a Foot, which Fraction is half a Foot.

At ten Inches and half ſquare, and the ſame length, the Content will be found 13 Foot, 7812 parts of 10000 of a Foot, which Fraction is three quarters of a Foot and more.

The Third Example.

Suppoſe a piece of Timber to be 15 Inches ſquare, and 20 Foot in length, look as before the ſquare on the head of the Table, and the length in the firſt Column

Column of the Page, the Number anſwering to the length in the Column under the ſquare, is 31 Foot 3500 parts of 10000 of a Foot, which Fraction is one quarter of a Foot and more.

And 15 Inches and an half ſquare, and 20 Foot the ſame length, the Content will be found 33 Foot, 3680 parts of 10000 of a Foot, which Fraction is a quarter of a Foot, and ſomething more.

The Fourth Example.

Suppoſe a piece of Timber to be 21 Inches ſquare, and 9 Foot in length, if you look as before the ſquare on the Head of the Table, and the length in Feet on the ſide, the Content will be found in the common Place of Meeting 27 ſquare Feet of Timber, and 5625 parts of 10000 of a Foot.

At 21 Inches and an half ſquare, and 9 Foot in length, the Content will be found 28 Foot, 8906 parts of 10000 of a Foot, which Fraction will in the Table be found three quarters and half quarter and more.

The Fifth Example.

Suppoſe a piece of Timber 28 Inches ſquare, and 27 Foot in length; if you look as before the ſquare on the Head of the Table, and the length in Feet in the firſt Column of the Page, in a ſtraight Line from thence in the Column of the Square, the Content will be found 147 Foot of Timber, and no more.

At 28 Inches and an half ſquare, and 27 Foot in length, the Content will be found in the Table 152 ſquare Feet of Timber, and a quarter of a Foot and ſomething more.

The Sixth Example.

Suppoſe a piece of Timber 33 Inches ſquare, and 9 Foot in length: Looking in the Table as before, for the ſquare, and the length, the Content will be found 68 Foot, and 0625 parts of 10000 of a Foot.

At 18 Foot of length, and the ſame ſquare, the Content will be found 136 Foot, and 1250 parts of 10000 of a Foot, which Fraction will be found to be half a quarter of a Foot.

Theſe Examples may ſatisfy the meaneſt Capacity, the Tables being ſo plain and eaſy. I will ſet down the Content of all thoſe pieces of Timber ſuppoſed to be meaſured in the Examples.

Length in Feet.	*Square in Inches.*	*The Content in Feet and Parts.*
15	6	3. 7500
18	9	10. 1250
18	9½	11. 2812
18	10	12. 5000
18	10½	13. 7812
20	15	31. 2500
20	15½	33. 3680
9	21	27. 5625
9	21½	128. 8906
27	28	147. 0000
27	28½	52. 2968
9	33	168. 0625
18	33½	36. 1250
		673. 9928

This Table contains the length in Feet of all the pieces of Timber, the Square in Inches and half Inches, the Content in Feet and Parts, which by the Rule of Addition will be found to be 673 Foot of Timber, and 9928 parts of 10000 of a Foot wanting 72 ſquare Inches of a Foot more.

* * *

CHAP. XIII.

Here followeth the Table of Timber Meaſure.

Leng.	3 *Inch.* *ſq.* Feet 1234.	3 ½ *qu.* Feet 1234.	4 *Inch.* *ſq.* Feet 1234.	4 ½ *qu.* Feet 1234.
1	0.0625	0.0850	0.1111	0.1406
2	0.1250	0.1701	0 2222	0.2812
3	0.1875	0.2552	0.3333	0.4219
4	0.2500	0.3402	0.4444	0.5625
5	0.3125	0.4253	0.5555	0 7031
6	0.3750	0.5104	0.6666	0.8437
7	0.4375	0.5954	0.7777	0.9843
8	0.5000	0.6805	0.8888	1.1250
9	0.5625	0.7656	1.0000	1.2656
10	0.6250	0.8506	1.1111	1.4062
11	0.6875	0.9357	1.2222	1.5468
12	0.7500	1.0208	1.3333	1.6875
13	0.8125	1.1058	1.4444	1.8281
14	0.8750	1.1909	1.5555	1.9687
15	0.9375	1.2759	1.6666	2.1093
16	1.0000	1.3609	1.7777	2.2500
17	1.0625	1.4461	1.8888	2.3906
18	1.1250	1.5312	2.0000	2.5312
19	1.1875	1.6163	2.1111	2.6718
20	1.2500	1.7013	2.2222	2.8125
21	1.3125	1.7864	2.3333	2.9531
22	1.3750	1.8715	2.4444	3.0937
23	1.4375	1.9565	2.5555	3.2343
24	1.5000	2.0416	2.6666	3.3750
25	1.5625	2.1267	2.7777	3.5156
26	1.6250	2.2117	2.8888	3.6562
27	1.6875	2.2968	3.0000	3.7968
28	1.7500	2.3819	3.1111	3.9375
29	1.8125	2.4670	3.2222	4.0781
30	1.8750	2.5520	3.3333	4.2187

Leng.	6 ½ Feet 1234.	5 ½ Feet 1234.	6 *Inch.* *ſq.* Feet 1234.	6 ½ Feet 1234.
1	0.1736	0.2100	0.2500	0.2934
2	0.3472	0.4201	0.5000	0.5868
3	0.5208	0.6302	0.7500	0.8802
4	0.6944	0.8402	1.0000	1.1736
5	0.8680	1.0503	1.2500	1.4670
6	1.0416	1.2604	1.5000	1.7604
7	1.2152	1.4704	1.7500	2.0538
8	1.3888	1.6805	2.0000	2.3472
9	1.5624	1.8906	2.2500	2.6406
10	1.7361	2.1006	2.5000	2.9340
11	1.9097	2.3107	2.7500	3.2274
12	2.0833	2.5208	3.0000	3.5208
13	2.2569	2.7309	3.2500	3.8142
14	2.4305	2.9409	3.5000	4.1076
15	2.6041	3.1510	3.7500	4.4010
16	2.7777	3.3611	4.0000	4.6944
17	2.9513	3.5711	4.2500	4.9878
18	3.1249	3.7812	4.5000	5.2812
19	3.2986	3.9913	4.7500	5.5746
20	3.4722	4.2013	5.0000	5.8680
21	3.6458	4.4114	5.2500	6.1614
22	3.8194	4.6215	5.5000	6.4548
23	3.9930	4.8315	5.7500	6.7482
24	4.1666	5.0416	6.0000	7.0416
25	4.3402	5.2517	6.2500	7.3350
26	4.5138	5.4618	6.5000	7.6284
27	4.6874	5.6718	6.7500	7.9218
28	4.8611	5.8819	7.0000	8.2152
29	5.0347	6.0920	7.2500	8.5086
30	5.2083	6.3020	7.5000	8.8020

Leng.	7 *Inch.* ſq. Feet 1234.	7 ½ Feet 1234.	8 *Inch.* ſq. Feet 1234.	8 *Inch.* Feet. 1234.
1	0.3402	0.3906	0.4444	0.5017
2	0.6805	0.7812	0.8888	1.0034
3	1.0208	1.1718	1.3333	1.5052
4	1.3611	1.5625	1.7777	2.0069
5	1.7013	1.9531	2.2222	2.5086
6	2.0416	2.3437	2.6666	3.0104
7	2.3819	2.7343	3.1111	3.5121
8	2.7222	3.1250	3.5555	4.0138
9	3.0624	3.5156	4.0000	4.5156
10	3.4027	3.9062	4.4444	5.0173
11	3.7430	4.2968	4.8888	5.5190
12	4.0833	4.6875	5.3333	6.0208
13	4.4235	5.0782	5.7777	6.5225
14	4.7638	5.4687	6.2222	7.0243
15	5.1041	5.8593	6.6666	7.5260
16	5.4444	6.2500	7.1111	8.0277
17	5.7847	6.6406	7.5555	8.5295
18	6.1249	7.0312	8.0000	9.0312
19	6.4652	7.4218	8.4444	9.5329
20	6.8055	7.8125	8.8888	10.0347
21	7.1458	8.2031	9.3333	10.5364
22	7.4861	8.5937	9.7777	11.0381
23	7.8263	8.9843	10.2222	11.5399
24	8.1666	9.3750	10.6666	12.0416
25	8.5069	9.7656	11.1111	12.5434
26	8.8472	10.1562	11.5555	13.0451
27	9.1874	10.5468	12.0000	13.5468
28	9.5277	10.9375	12.4444	14.0486
29	9.8680	11.3281	12.8888	14.5503
30	10.2082	11.7187	13.3333	15.0520

Leng.	9 *Inch,* *ſq.* Feet 1234.	9 ½ Feet 1234.	10 *Inch.* *ſq.* Feet 1234.	19 ½ Feet 1234.
1	0.5625	0.6267	0.6944	0.7656
2	1.1250	1.2534	1.3888	1.5312
3	1.6875	1.8802	2.0833	2.29 8
4	2.2500	2.5069	2.7777	3.0625
5	2.8125	3.1336	3.4722	3.8281
6	3.3750	3.7604	4.1666	4.5937
7	3.9375	4.3871	4.8611	5.3593
8	4.5000	5.0138	5.5555	6.1250
9	5.0625	5.6406	6.2500	6.8906
10	5.6250	6.2673	6.9444	7.6562
11	6.1875	6.8940	7.6388	8.4218
12	6.7500	7.5208	8.3333	9.1875
13	7.3125	8.1475	9.0277	9.9531
14	7.8750	8.7743	9.7222	10.7187
15	8.4375	9.4010	10.4166	11.4843
16	9.0000	10.0277	11.1111	12.2500
17	9.5625	10.6544	11.8055	13.0156
18	10.1250	11.2812	12.5000	13.7812
19	10.6875	11.9079	13.1944	14.5468
20	11.2500	12.5347	13.8889	15.3125
21	11.8125	13.1614	14.5833	16.0781
22	12.3750	13.7881	15.2777	16.8437
23	12.9375	14.4149	15.9722	17.6093
24	13.5000	15.0416	16.6666	18.3750
25	14.0625	15.6684	17.3611	19.1406
26	14.6250	16.2951	18.0555	19.9062
27	15.1875	16.9218	18.7500	20.6718
28	15.7500	17.5486	19.4444	21.4375
29	16.3125	18.1753	20.1388	22.2031
30	16.8750	18.8020	20.8333	22.9687

Leng.	11 *Inch.* *ſq.* Feet 1234.	11 ½ Feet. 1234.	12 *Inch.* *ſq.* Feet 1234.	12 ½ Feet 1234.
1	0.8402	0.9184	1.0000	1.0850
2	1.6805	1.8368	2.0000	2.1701
3	2.5208	2.7552	3.0000	3.2552
4	3.3611	3.6736	4.0000	4.3402
5	4.2013	4.5920	5.0000	5.4253
6	5.0416	5.5104	6.0000	6.5104
7	5.8819	6.4288	7.0000	7.5955
8	6.7222	7.3472	8.0000	8.6805
9	7.5624	8.2656	9.0000	9.7656
10	8.4027	9.1840	10.0000	10.8506
11	9.2430	10.1024	11.0000	11.9357
12	10.0833	11.0208	12.0000	13.0207
13	10.9236	11.9392	13.0000	14.1058
14	11.7638	12.8576	14.0000	15.1908
15	12.6041	13.7760	15.0000	16.2759
16	13.4444	14.6944	16.0000	17.3610
17	14.2847	15.6128	17.0000	18.4460
18	15.1249	16.5312	18.0000	19.5311
19	15.9652	17.4496	19.0000	20.6162
20	16.8055	18.3680	20.0000	21.7013
21	17.6458	19.2864	21.0000	22.7864
22	18.4860	20.2048	22.0000	23.8715
23	19.3263	21.1232	23.0000	24.9565
24	20.1666	22.0416	24.0000	26.0416
25	21.0069	22.9600	25.0000	27.1267
26	21.8472	23.8784	26.0000	28.2118
27	22.6874	24.7968	27.0000	29.2968
28	23.5277	25.7152	28.0000	30.3819
29	24.3680	26.6336	29.0000	31.4670
30	25.2083	27.5520	30.0000	32.5520

Leng.	31 *Inch.* ſq. Feet 1234.	13 ½ Feet 1234.	14 *Inch.* ſq. Feet 1234.	14 ½ Feet 1234.
1	1.1736	1.2656	1.3611	1.4745
2	2.3472	2.5312	2.7222	2.9490
3	3.5208	3.7968	4.0833	4.4236
4	4.6944	5.0625	5.4444	5.8981
5	5.8680	6.3281	6.8055	7.3726
6	7.0416	7.5937	8.1666	8.8472
7	8.2152	8.8593	9.5277	10.3217
8	9.3888	10.1250	10.8888	11.7962
9	10.5624	11.3906	12.2499	13.2708
10	11.7361	12.6562	13.6111	14.7453
11	12.9097	13.9219	14.9722	16.2199
12	14.0833	15.1875	16.3333	17.6944
13	15.2569	16.4531	17.6944	19.1689
14	16.4305	17.7187	19.0555	20.6435
15	17.6041	18.9843	20.4166	22.1180
16	18.7777	20.2500	21.7777	23.5925
17	19.9513	21.5156	23.1388	25.0671
18	21.1249	22.7812	24.4999	26.5416
19	22.2985	24.0468	25.8611	28.0162
20	23.4722	25.3125	27.2222	29.4907
21	24.6458	26.5781	28.5833	30.9652
22	25.8194	27.8437	29.9444	32.4398
23	26.9930	29.1093	31.3055	33.9143
24	28.1666	30.3750	32.6666	35.3888
25	29.3402	31.6406	34.0277	36.8634
26	30.5138	32.9062	35.3888	38.3379
27	31.6874	34.1718	36.7499	39.8124
28	32.8610	35.4375	38.1111	41.2870
29	34.0346	35.7031	39.4722	42.7615
30	35.2083	37.9687	40.8333	44.2361

Leng.	15 *Inch.* *ſq.* Feet 1234.	15 ½ Feet. 1234.	16 *Inch.* *ſq.* Feet 1234.	16 ½ Feet 1234.
1	1.5625	1.6684	1.7777	1.8906
2	3.1250	3.3368	3.5555	3.7812
3	4.6875	5.0052	5.3333	5.6718
4	6.2500	6.6736	7.1111	7.5625
5	7.8125	8.3420	8.8888	9.4531
6	9.3750	10.0104	10.6666	11.3437
7	10.9375	11.6788	12.4444	13.2343
8	12.5000	13.3472	14.2222	15.1250
9	14.0625	15.0156	16.0000	17.0156
10	15.6250	16.6840	17.7777	18.9062
11	17.1875	18.3524	19.5555	20.7968
12	18.7500	20.0208	21.3333	22.6875
13	20.3125	21.6892	23.1111	24.5781
14	21.8750	23.3576	24.8888	26.4687
15	23.4375	25.0260	26.6666	28.3593
16	25.0000	26.6944	28.4444	30.2500
17	26.5625	28.3628	30.2222	32.1406
18	28.1250	30.0312	32.0000	34.0312
19	29.6875	31.6995	33.7777	35.9218
20	31.2500	33.3680	35.5555	37.8125
21	32.8125	35.0364	37.3333	39.7031
22	34.3750	36.7048	39.1111	41.5937
23	35.9375	38.3732	40.8888	43.4843
24	37.5000	40.0416	42.6666	45.3750
25	39.0625	41.7100	44.4444	47.2656
26	40.6250	43.3784	46.2222	49.1562
27	42.1875	45.0468	48.0000	51.0468
28	43.7500	46.7152	49.7777	52.9375
29	45.3125	48.3836	51.5555	54.8281
30	46.8750	50.0520	53.3333	55.7187

Leng.	17 *Inch.* Feet 1234.	17 ½ Feet 1234.	18 *Inch.* *ſq.* Feet 1234.	18 ½ Feet 1234.
1	2.0069	2.1267	2.2500	2.3767
2	4 0138	4.2534	4.5000	4.7534
3	6.0208	6.3802	6.7500	7.1302
4	8.0277	8.5059	9.0000	9.5069
5	10.0347	10.6335	11.2500	11.8836
6	12.0416	12.7604	13.5000	14.2604
7	14.0486	14.8871	15.7500	16.6371
8	16.0555	17.0138	18.0000	19.0138
9	18.0625	19.1406	20.2500	21.3905
10	20.0694	21.2673	22.5000	23.7673
11	22.0763	23.3940	24.7500	26.1440
12	24.0833	25.5208	27.0000	28.5208
13	26.0902	27.6475	29.2500	30.8975
14	28.0972	29.7743	31.5000	33.2743
15	30.1041	31.9010	33.7500	35.6510
16	32.1111	34.0277	36.0000	38.0277
17	34.1180	36.1545	38 2500	40.4045
18	36.1250	38.2812	40.5000	42.7812
19	38.1319	40.4079	42.7500	45.1579
20	40.1388	42.5347	45.0000	47.5347
21	42.1458	44.6614	47.2500	49.9114
22	44.1527	46.7881	49.5000	52.2881
23	46.1597	48.9149	51.7500	54.6649
24	48.1666	51.0416	54.0000	57.0416
25	50.1736	53.1684	56.2500	59.4184
26	52.1805	55.2951	58.5000	61.7951
27	54.1875	57.4218	60.7500	64.1718
28	56 1944	59.5486	63.0000	66.5486
29	58.2013	61.6753	65 2500	68.9253
30	60.2083	63.8020	67.5000	71.3020

Leng.	19 *Inch.* *ſq.* Feet 1234.	19 ½ Feet 1234.	20 *Inch.* *ſq.* Feet 1234.	20 ½ Feet 1234.
1	2.5069	2.6406	2.7777	2.918
2	5.0138	5.2812	5.5555	5.836
3	7.5208	7.9218	8.3333	8.755
4	10.0277	10.5625	11.1111	11.673
5	12.5347	13.2031	13.8888	14.592
6	15.0416	15.8437	16.6666	17.510
7	17.5486	18.4843	19.4444	20.428
8	20.0555	21.1250	22.2222	23.347
9	22.5625	23.7656	25.0000	26.265
10	25.0694	26.4062	27.7777	29.184
11	27.5763	29.0468	30.5555	32.102
12	30.0833	31.6875	33.3333	35.020
13	32.5902	34.3281	36.1111	37.93
14	35.0972	36.9687	38.8888	40.857
15	37.6041	39.6093	41.6666	43.776
16	40.1111	42.2500	44.4444	46.694
17	42.6180	44.8906	47.2222	49.612
18	45.1250	47.5312	50.0000	52.531
19	47.6319	50.1718	52.7777	55.449
20	50.1388	52.8125	55.5555	58.368
21	52.6457	55.4531	58.3333	61.286
22	55.1526	58.0937	61.1111	64.204
23	57.6597	60.7343	63.8888	67.12
24	60.1666	63.3750	66.6666	70.04
25	62.6736	66.0156	69.4444	72.96
26	65.1805	68.6562	72.2222	75.87
27	67.6874	71.2968	75.0000	78.79
28	70.1944	73.9375	77.7777	81.71
29	72.7013	76.5781	80.5555	84.63
30	75.2083	79.2187	83.3333	87.55

Leng.	21 *Inch.* *ſq.* Feet 1234.	21 ½ Feet 1234.	22 *Inch.* *ſq.* Feet 1234.	22 ½ Feet 1234.
1	3.0625	3.2100	3.3611	3.5156
2	6.1250	6.4201	6.7222	7.0312
3	9.1875	9.6302	10.0833	10.5468
4	12.2500	12.8402	13.4444	14.0624
5	15.3125	16.0503	16.8055	17.5781
6	18.3750	19.2604	20.1666	21.0937
7	21.4375	22.4704	23.5277	24.6093
8	24 5000	25.6805	26.8888	28.1250
9	27.5625	28.8906	30.2499	31.6406
10	30.6250	32.1006	33.6111	35.1562
11	33.6875	35.3107	36.9722	38.6718
12	36.7500	38.5208	40.3333	42.1875
13	39 8125	41.7308	43.6944	45.7031
14	42.8750	44.9409	47.0555	49.2187
15	45.9375	48.1510	50.4166	52.7343
16	49.0000	51.3611	53.7777	56.2500
17	52.0625	54.5711	57.1388	59.7656
18	55.1250	57.7812	60.4999	63.2812
19	58.1875	60.9913	63 8610	66.7968
20	61.2500	64.2013	67.2222	70.3125
21	64.3125	67.4114	70.5833	73.8281
22	67.3750	70.6215	73.9444	77.3437
23	70.4375	73.8315	77.3055	80.8593
24	73.5000	77.0416	80.6666	84 3750
25	76.5625	80.2517	84.0277	87.8906
26	79.6250	83.4618	87.3888	91.4062
27	82.6875	86.6718	90.7499	94.9218
28	85.7500	89.8819	94.1110	98.4375
29	88.8125	93.0920	97.4721	101.9531
30	91.8750	96.3020	100.8333	105.4687

Leng.	23 *Inch.* ſq. Feet 1234.	23 ½ Feet 1234.	24 *Inch.* ſq. Feet 1234.	24 ½ Feet 1234.
1	3.6736	3.8350	4.0000	4.1684
2	7.3472	7.6701	8.0000	8.3368
3	11.0208	11.5052	12.0000	12.5052
4	14.6944	15.3402	16.0000	16.6736
5	18.3680	19.1753	20.0000	20.8420
6	22.0416	23.0104	24.0000	25.0104
7	25.7152	26.8454	28.0000	29.1788
8	29.3888	30.6805	32.0000	33.3472
9	33.0624	34.5156	36.0000	37.5156
10	36.7361	38.3506	40.0000	41.6840
11	40.4097	42.1857	44.0000	45.8525
12	44.0833	46.0208	48 0000	50.0208
13	47.7569	49.8559	52.0000	54.1892
14	51.4305	53.6909	56.0000	58.3576
15	55.1041	57.5260	60.0000	62.5260
16	58.7777	61.3611	64.0000	66.6944
17	62.4513	65.1961	68.0000	70.8628
18	66.1249	69.0312	72 0000	75.0312
19	69.7986	72.8663	76.0000	79.1996
20	73.4722	76.7013	80.0000	83.3680
21	77.1458	80.5364	84.0000	87.5364
22	80.8194	84.3715	88.0000	91.7048
23	84.4930	88.2065	92.0000	95.8732
24	88.1666	92.0416	96.0000	100.0416
25	91.8402	95.8767	100.0000	104.2100
26	95.5138	99.7118	104.0000	108.3784
27	99.1874	103.5468	108.0000	112.5468
28	102.8611	107.3819	112.0000	116.7152
29	106.5347	111.2170	116.0000	120.8836
30	110.2083	115.0520	120.0000	125.0520

Leng.	25 *Inch.* *ſq.* Feet 1234.	25 ½ Feet. 1234.	26 *Inch.* *ſq.* Feet 1234.	26 ½ Feet 1234.
1	4.3402	4.5156	4.6944	4.8767
2	8.6805	9.0312	9.3888	9.7534
3	13.0208	13.5468	14.0833	14.6302
4	17.3611	18.0625	18.7777	19.5069
5	21.7013	22.5781	23.4722	24.3837
6	26.0416	27.0937	28.1666	29.2604
7	30.3819	31.6093	32.8610	34.1371
8	34.7222	36.1250	37.5555	39.0138
9	39.0624	40.6406	42.2499	43.8906
10	43.4027	45.1562	46.9444	48.7673
11	47.7430	49.6718	51.6388	53.6440
12	52.0833	54.1875	56.3333	58.5208
13	56.4236	58.7031	61.0277	63.3975
14	60.7638	63.2187	65.7221	68.2743
15	65.1041	67.7343	70.4166	73.1510
16	69.4444	72.2500	75.1111	78.0277
17	73.7847	76.7656	79.8054	82.9045
18	78.1249	81.2812	84.4998	87.7812
19	82.4652	85.7968	89.1942	92.6579
20	86.8055	90.3125	93.8888	97.5347
21	91.1458	94.8281	98.5832	102.4114
22	95.4860	99.3437	103.2776	107.2881
23	99.8263	103.8593	107.9721	112.1649
24	104.1666	108.3750	112.6665	117.0416
25	108.5069	112.8906	117.3610	121.9184
26	112.8472	117.4062	122.0554	126.7951
27	117.1874	121.9219	126.7498	131.6718
28	121.5277	126.4375	131.4442	136.5486
29	125.8680	130.9531	136.1387	141.4253
30	130.2083	135.4687	140.8332	146.3020

Leng.	27 *Inch.* ſq. Feet 1234.	27 ½ Feet 1234.	28 *Inch.* ſq. Feet 1234.	28 ½ Feet 1234.
1	5.0625	5.2517	5.4444	5.6406
2	10.1250	10.5034	10.8888	11.2812
3	15.1875	15.7552	16.3333	16.9218
4	20.2500	21.0069	21.7777	22.5625
5	25.3125	26.2586	27.2222	28.2031
6	30.3750	31.5104	32.6666	33.8437
7	35.4375	36.7621	38.1111	39.4843
8	40.5000	42.0138	43.5555	45.1250
9	45.5625	47.2656	49.0000	50.7656
10	50.6250	52.5173	54.4444	56.4062
11	55.6875	57.7690	59.8888	62.0468
12	60.7500	63.0208	65.3333	67.6875
13	65.8125	68.2725	70.7777	73.3281
14	70.8750	73.5243	76.2222	78.9687
15	75.9375	78.7760	81.6666	84.6093
16	81.0000	84.0277	87.1111	90.2500
17	86.0625	89.2795	92.5555	95.8906
18	91.1250	94.5312	98.0000	101.5312
19	95.1875	99.7829	103.4444	107.1718
20	101.2500	105.0347	108.8888	112.8125
21	106.3125	110.2864	114.3333	118.4531
22	111.3750	115.5381	119.7777	124.0937
23	116.4375	120.7899	125.2222	129.7343
24	121.5000	126.0416	130.6666	135.3750
25	126.5625	131.2934	136.1111	141.0156
26	131.6250	136.5451	141.5555	146.6562
27	136.6875	141.7968	147.0000	152.2968
28	141.7500	147.0486	152.4444	157.9374
29	146.8125	152.3003	157.8888	163.5780
30	151.8750	157.5520	163.3333	169.2186

Leng.	29 *Inch.* ſq. Feet 1234.	29 ½ Feet 1234.	30 *Inch.* ſq. Feet 1234.	30 ½ Feet 1234.
1	5.8402	6.0434	6.2500	6.3877
2	11.6805	12.0868	12.5000	12 7754
3	17.5208	18.1302	18.7500	19.1632
4	23.3611	24.1736	25.0000	25.5509
5	29.2013	30.2170	31.2500	31.9386
6	35.0416	36.2604	37.5000	38.3263
7	40.8819	42.3038	43.7500	44.7141
8	46.7222	48.3472	50.0000	51.1018
9	52.5624	54.3906	56.2500	57.4895
10	58.4027	60.4340	62.5000	63.8773
11	64.2430	66.4774	68.7500	70.2650
12	70.0833	72.5208	75.0000	76.6527
13	75.9236	78.5642	81.2500	83.0405
14	81.7638	84.6076	87.5000	89.4282
15	87.6041	90.6510	93.7500	95.8160
16	93.4444	96.6944	100.0000	102.2037
17	99.2847	102.7378	106.2500	108.5914
18	105.1249	108.7812	112.5000	114.9791
19	110.9652	114.8246	118.7500	121.3668
20	116.8055	120.8680	125.0000	127.7546
21	122.6458	126.9114	131.2500	134.1423
22	128.4860	132.9548	137.5000	140.5300
23	134.3263	138.9982	143.7500	146.9178
24	140.1666	145.0416	150.0000	153.3055
25	146.0069	151.0850	156.2500	159.6932
26	151.8472	157.1284	162.5000	166.0810
27	157.6875	163.1718	168.7500	172.4688
28	163.5277	169.2152	175.0000	178.8565
29	169.3680	175.2586	181.2500	185.2442
30	175.2083	181.3020	187.5000	191.6319

Leng.	31 *Inch.* *ſq.* Feet 1234.	31 ½ Feet 1234.	32 *Inch.* *ſq.* Feet 1234.	32 ½ Feet 1234.
1	6.6736	6.8905	7.1111	7.3351
2	13.3472	13.7812	14.2222	14.6701
3	20.0208	20.6718	21.3333	22.0052
4	26.6944	27.5625	28.4444	29.3403
5	33.3680	34.4531	35.5555	36.6754
6	40.0416	41.3437	42.6666	44.0104
7	46.7152	48.2343	49.7777	51.3455
8	53.3888	55.1250	56.8888	58.6805
9	60.0624	62.0156	64.0000	66.0156
10	66.7361	68.9062	71.1111	73.3506
11	73.4097	75.7968	78.2222	80.6857
12	80.0833	82.6875	85.3333	88.0208
13	86.7569	89.5781	92.4444	95.3558
14	93.4305	96.4687	99.5555	102.6909
15	100.1041	103.3593	106.6666	110.0260
16	106.7777	110.2500	113.7777	117.3611
17	113.4513	117.1406	120.8888	124.6961
18	120.1249	124.0312	128.0000	132.0312
19	126.7985	130.9218	135.1111	139.3663
20	133.4722	137.8125	142.2222	146.7013
21	140.1458	144.7031	149.3333	154.0364
22	146.8194	151.5937	156.4444	161.3714
23	153.4930	158.4843	163.5555	168.7065
24	160.1666	165.3750	170.6666	176.0416
25	166.8402	172.2656	177.7777	183.3767
26	173.5138	179.1562	184.8888	190.7117
27	180.1874	186.0468	192.0000	198.0468
28	186.8610	192.9375	199.1111	205.3819
29	193.5346	199.8281	206.2222	212.7170
30	200.2083	206.7189	213.3333	220.0520

Leng.	33 *Inch.* *ſq.* Feet 1234.	19 ½ Feet 1234.	34 *Inch.* *ſq.* Feet 1234.	14 ½ Feet 1234.
1	7.5625	7.7934	8.0252	8.2656
2	15.1250	15.5868	16.0505	16.5312
3	22.6875	23.3802	24.0757	24.7968
4	30.2500	31.1736	32.1010	33.0625
5	37.8125	38.9670	40.1262	41.3281
6	45.3750	46.7604	48 1515	49.5937
7	52.9375	54.5538	56.1767	57.8593
8	60.5000	62.3472	64.2020	66.1250
9	68.0625	70.1406	72.2272	74.3906
10	75.6250	77.9340	80.2525	82.6562
11	83.1875	85.7274	88.2777	90.9218
12	90.7500	93.5208	96.3030	99.1875
13	98.3125	101.3142	104.3282	107.4531
14	105.8750	109.1076	112.3535	115.7187
15	113.4375	116.9010	120.3787	123.9843
16	121.0000	124.6944	128.4040	132.2500
17	128.5625	132.4878	136 4292	140 5156
18	136 1250	140.2812	144.4545	148.7812
19	143.6875	148.0746	152.4797	157.0468
20	151.2500	155.8680	160.5050	165.3125
21	158.8125	163.6614	168.5302	173.5781
22	166.3750	171.4548	176.5555	181.8437
23	173.9375	179.2482	184.5808	190.1093
24	181.5000	187 0416	192.6060	198.3750
25	189.0625	194.8350	200.6313	206.6406
26	196.6250	202.6284	208.6565	214.9062
27	204.1875	210.42 8	216.6818	223.1718
28	211.7500	218.2152	224.7070	231.4375
29	219.3125	226.0086	232.7322	239.7031
30	226.8750	233.8020	240.7575	247.9687

Leng.	35 *Inch.* *ſq.* Feet 1234.	35½ Feet 1234.	36 *Inch.* *ſq.* Feet 1234.
1	8.5069	8.7517	9.0000
2	17.0138	17.5034	18.0000
3	25.5208	26.2552	27.0000
4	34.0277	35.0069	36.0000
5	42.5347	43.7586	45.0000
6	51.0416	52.5104	54.0000
7	59.5486	61.2621	63.0000
8	68.0555	70.0138	72.0000
9	76.5624	78.7656	81.0000
10	85.0694	87.5173	90.0000
11	93.5763	96.2690	99.0000
12	102.0833	105.0208	108.0090
13	110.5902	113.7725	117.0000
14	119.0972	122.5243	126.0000
15	127.6041	131.2760	135.0000
16	136.1111	140.0277	144.0000
17	144.6180	148.7795	153.0000
18	153.1249	157.5312	162.0000
19	161.6319	166.2830	171.0000
20	170.1388	175.0347	180.0000
21	178.6458	183.7864	189.0000
22	187.1527	152.5381	198.0000
23	195.6597	201.2899	207.0000
24	204.1666	210.04 6	216.0000
25	212.6735	218.7934	225.0000
26	221.1805	227.5451	234.0000
27	229.6874	236.2968	243.0000
28	238.1944	245.0486	252.0000
29	246.7013	253.8003	261.0000
30	255.2083	262.5520	270.0000

A
SECOND WAY
OF
Meaſuring Boards and Timber:
OR,
The Uſe of Two TABLES;
BEING
The GROUND-WORK of Meaſuring both Boards and Timber.

The Firſt is a TABLE *of the Number of Inches contained in any Number of Feet of Board under* 200 *Feet.*

The Second is a TABLE *of the Number of Inches contained in any Number of Feet of Timber under* 200 *Feet.*

IT is not known to all who have any occaſion to meaſure Boards, that in every ſquare Foot of Board there is 144 ſquare Inches, and in every ſquare Foot of Timber there is 1728 cubical Inches. Theſe two Tables, I call the one, the Table of 144, the other 1728; the Uſe of both followeth.

In the firſt Example of Board Meaſure is given a Board, being 15 Inches in breadth, and 16 Foot, or 192 Inches in length. Theſe two Numbers I fold one into another, and the Product is 2880. With this Number I look in the Table 144, and I find the juſt Number, and in the Column of Feet I find 20, and ſo many Feet is in that Board and no more.

192
15

The Second Example.

The Board given is eight Inches one quarter in breadth, and 16 Foot, or 192 Inches. Theſe two Numbers multiplied one into the other, the Product is 1584, which in the Table anſwers to eleven Foot as before.

$$\begin{array}{r} 825 \\ \underline{192} \\ 1650 \\ 7425 \\ 825 \\ \hline 1584|00 \end{array}$$

The Third Example.

The Board given is 17 Inches 3 quarters in breadth, and 28 Foot, or 336 Inches in length; theſe 2 Numbers multiplied one into another, the Product is 5964, which I ſeek in the Table, and finding not the juſt Sum, I take the next leaſt Sum

     5964
Sum   and ſubtract from the former Smm, and
     5904

there remains 60 Inches; which I look in the Table of the Parts of a Foot, which anſwers to one quarter and half-quarter and more. So the Content of the Board is 41 Foot one quarter and half-quarter, and 6 Inches.

1775
336

10650
5325
5325

596400

The Fourth Example.

The Board given was 32 Inches in breadth, and 37 Foot, 444 Inches in length; which multiplied one into another, the Product is 14208. The next leaſt Number is 98 Foot 14112, which ſubtract from the former 96, there remains 96 Inches. So the Content of the Board is 98 Foot and a half, and half a quarter, and 6 Inches.

444
32

888
1332

14208

The Fifth Example.

Let a Board be given 34 Inches in breadth, and 48 Foot or 576 Inches in length. Theſe two Numbers as before multiplied one into another, the Product is 19584, which I ſeek in the Table of 144, and I find the juſt Sum anſwering to 136 Foot, ſo much in that Board.

$$\begin{array}{r} 576 \\ 34 \\ \hline 2304 \\ 1728 \\ \hline 19584 \end{array}$$

The Sixth Example.

Let a board be given 50 Inches in breadth, and 60 Foot, or 720 Inches in length. Theſe 2 Sums multiplied one into another, the Product is 36000, which I ſeek in the Table of 144, and I find the Sum too large for the Table; then I half the Sum, and it is 18000, which I ſeek in the Table, and find the juſt Sum; and in the Column of Feet 125, which being doubled, the Content of the Board is 250 Foot, and no more.

$$\begin{array}{r} 720 \\ 50 \\ 36000 \\ \hline 18000 \end{array}$$

This Table contains the Parts of a Foot of a Board of 144 Inches in the uſual Terms, as followeth.

	Inches
HALF a quarter of a Foot	18
A quarter of a Foot	36
Quarter and half quarter	54
Half a Foot	72
Half a Foot and half a quarter	90
Three quarters of a Foot	108
Three quarters and half a quarter	126
One Foot	144

The Table of 144.

Inch.	*Feet*	*Inch.*	*Feet*	*Inches*	*Feet*	*Inches*	*Feet*
144	1	3744	26	7344	51	10944	76
288	2	3888	27	7488	52	11088	77
432	3	4032	28	7632	53	11232	78
576	4	4176	29	7776	54	11376	79
720	5	4320	30	7920	55	11520	80
864	6	4464	31	8064	56	11664	81
1008	7	4608	32	8208	57	11808	82
1152	8	4752	33	8352	58	11952	83
1296	9	4896	34	8496	59	12095	84
1440	10	5040	35	8640	60	12240	85
1584	11	5184	36	8784	61	12384	86
1728	12	5328	37	8928	62	12528	87
1872	13	5472	38	9072	63	12672	88
2016	14	5616	39	9216	64	12816	89
2160	15	5760	40	9360	65	12960	90
2304	16	5904	41	9504	66	13104	91
2448	17	6048	42	9648	67	13248	92
2592	18	6192	43	9792	68	13392	93
2736	19	6336	44	9936	69	13536	94
2880	20	6480	45	10080	70	13680	95
3024	21	6624	46	10224	71	13824	96
3168	22	6768	47	10368	72	13968	97
3312	23	6912	48	10512	73	14112	98
3456	24	7056	49	10656	74	14256	99
3600	25	7200	50	10800	75	14400	100

The

The Table of 144.

Inches	*Feet*	*Inches*	*Feet*	*Inches*	*Feet*	*Inches*	*Feet*
14544	101	18144	126	21744	151	25344	176
14688	102	18288	127	21888	152	25488	177
14832	103	18432	128	22032	153	25632	178
14976	104	18576	129	22176	154	25776	179
15120	105	18720	130	22320	155	25920	180
15264	106	18864	131	22464	156	26064	181
15408	107	19008	132	22608	157	26208	182
15552	108	19152	133	22752	158	26352	183
15696	109	19296	134	22896	159	26496	184
15840	110	19440	135	23040	160	26640	185
15984	111	19584	136	23184	161	26784	186
16128	112	19728	137	23328	162	26928	187
16272	113	19872	138	23472	163	27072	188
16416	114	20016	139	23616	164	27216	189
16560	115	20160	140	23760	165	27360	190
16704	116	20304	141	23904	166	27504	191
16848	117	20448	142	24048	167	27648	192
16992	118	20592	143	24192	168	27792	193
17136	119	20736	144	24336	169	27936	194
17280	120	20880	145	24480	170	28080	195
17424	121	21024	146	24624	171	28224	196
17568	122	21168	147	24768	172	28368	197
17712	123	21312	148	24912	173	28512	198
17856	124	21456	149	25056	174	28656	199
18000	125	21600	150	25200	175	28800	200

A Second Way of Meaſuring Timber by the Table of 1728, is as followeth.

IN the firſt Example of Board Meaſure, was given a Board of 15 Inches in breadth, and 16 Foot, or 192 Inches in length. Let the ſquare of a piece of Timber be 15 Inches, and the length 192 Inches. To meaſure this piece, multiply the ſquare in it ſelf 15 by 15, the Product is 225. This Sum multiplied by 192, the length, produceth 43200. Which Number I ſeek in the Table of 1728, and find the juſt Sum to anſwer to 25 Foot of Timber.

Or thus, the Content of the Board was found 2880 Inches. This multiplied by 15, given as before 43200; which found in the Table of 1728, gives as before 25 Foot of Timber. Both theſe Ways confirm one another, if truly wrought, and ſo of any other.

2880
15

14400
2880

43200

The Second Example.

The Board given was 8 Inches one quarter i
breadth, 16 Foot, or 192 Inches in length. Le
the ſquare of a piece of Timber be eight Inche

on

one quarter, and 192 Inches in length, the ſquare 8 Inches one quarter, being multiplied in it ſelf, produceth 68,0625; which again multiplied by 192, produceth 130680000. Which whole Numbers being found in the Table of 1728, or the next leaſt, and ſubtracted from the former Sum $\frac{13068}{12096}$, leaveth 972, which found in the little Table of Parts of a Foot, is found half a Foot, and 108 Cubical Inches. So the Content of the whole piece is 7 Foot and half a Foot, and 108 Inches. Or thus, multiply the Content of the Board in the Second Example, found by 8 Inches one quarter, the Product will be as before 13068|00, which cutting of the two Cyphers for the two Fractions, is the ſame as before.

8.25	68,0625
8.25	192
4125	1361250
1650	6125625
6600	680625
68,0625	13068,0000

In the Third Example of Board Meaſure, was given a Board 17 Inches 3 quarters in breadth, and 28 Foot, or 336 Inches in length, the Content of that Board was found 5964 Inches.

Let a piece of Timber be given 17 Inches three quarters ſquare, and 28 Foot the length, to find the Content; multiply 17 Inches three quarters in it ſelf, the Product is 3150625, which multiplied by the length 336, the Product is 105861, cutting off the four Cyphers, enter the Table of 1728, and you will find the next leaſt Number to anſwer to 61 Foot, which being ſubtracted from the former, there remains 453 Inches, being one quarter of a Foot, and twenty one Inches.

17,75
17,75

8875
12425
12425
1775

315,0625
336

18903750
9451875
9451875

105861|0000
105408

453

Or thus multiply the Content of the Board in the third Example, which is 5964, by the ſquare of the piece 1775, and it will produce the ſame Number as before.

In the fourth Example of Board Meaſure, was given a Board 32 Inches in breadth, and 37 Foot, or 444 Inches in length, the Content of the Board was 14208. Let the ſquare of a piece of Timber be 32 Inches, this multiplied in it ſelf, the Product is 24. Which multiplied by 444, the length in Inches, the Product is 454656, which Number is too large for my Table.

```
  1024
   444
 ------
  4096
 4096
4096
 ------
454656
```

I then divide this Sum by 2, and the half Sum is——227328 With which Sum I enter the Table of 1728, and the next leaſt Sum is 226368, which ſubtracted from the half Sum, there remains 960 Inches, which is 131 Foot and a half and 96 Inches, which being doubled, the whole Content of the piece is 263 Foot 192 Inches, as by the large Table of Timber Meaſure doth appear. If you take any two Numbers in the Table, as will make 37 Feet, then adding whole Numbers and Fractions together, will produce 263 Foot, and more than one tenth of a Foot.

```
454656
227328
226368
   960
```

In the fifth Example, the Board given is 34 Inches in breadth, and 48 Foot, or 576 Inches in length, thoſe two Numbers multiplied one in the other, the Product is 19584, which found in the Table of 144, the Content of the Board is found 136 Foot.

If a piece of Timber be given 34 Inches ſquare, and 48 Foot, or 576 Inches in length, thoſe two Numbers multiplied one by the other, will give the Content in Inches, or multiply the ſquare in it ſelf, the ſame is 1156. Which multiplied by the length in Inches, gives the Content in Inches. Which Sum is too large for the Table of 1728, therefore I half the

the Sum, which I ſeek in the Table, and I find the next leaſt Sum to be 192 Foot, and 1152 Inches remain; which being doubled, the whole Content of the piece is 385 Foot, and 576 Inches, being more than a quarter of a Foot more in the piece.

1156
576
6936
8092
5780
665856
3329228

To meaſure unequal Sided Timber, let the breadt of a piece of Timber be 20 Inches, and the thickneſs be 14 Inches; thoſe two Numbers ſolded one in the other, produce 280 Inches, the ſquare Root of that Number, is the ſquare of that piece, which is 16 Inches three quarters of an Inch. Let the length of that piece be 18 Foot, or 216 Inches multiply 280 by 216, the Product will be 60480 Which Number ſeek in the Table of 1728, you ſhall find to anſwer that Number 35 Foot, ſo much is in that piece, and no more.

280
216
1680
280
560
60480

It is a common received Opinion amongſt Carpenters, that if a piece of Timber be broader one way han an other, they add two ſides together ; and ake the one half of the Sum for the ſquare of the iece. How much from truth this is will appear, or 20 and 14 added together, the half is 17, which s taken for the ſquare of the piece. Which if you ook in the Table of Timber ſquare at 17 Inches quare you ſhall find at 18 Foot of length, there is 36 Foot and half a quarter of a Foot more. So hat the Buyer payeth for a Foot and half a quarter f a Foot more than he hath. So that it may appear y what I have ſaid formerly, look what the difference is, as here it is ſix Inches, the half difference hree Inches, which is the ſquare of a piece of Timber, that the Buyer loſeth all the length of the piece f 18 Foot. If the bifference be more, the greater he loſer ; if leſs the difference, the leſs the loſer.

A ſecond piece of Timber 32 Inches in breadth, nd 18 Inches in thickneſs, the two ſides added ake 50 Inches, the half is 25 which is taken for he ſquare of the piece, multiply 32 by 18, the roduct is 576. Let the length of the piece be 20 oot, or 240 Inches, thoſe two Numbers multiplied ne by the other, the Product will be 138240. Which I look in the Table of 1728, and I find the ame Sum, and in the Column of Feet, I find 80 oot of Timber to be in that piece, and no more. f the ſame piece had been meaſured at 25 Inches quare, according to the erroneous way, there would e 86 Foot, and three quarters of a Foot and more ; he difference being 14 Inches, the half difference is even Inches. So that the Buyer loſeth a piece of Timber of 7 Inches ſquare, and 20 Foot of length, r payeth for ſo much more than he hath.

576
240

23040
1152

138240

In the firſt Example of Timber Meaſure is give a piece ſix Inches ſquare, and 15 Foot, or 180 Inches in length; the ſquare of the piece multiplie in it ſelf is 36, the length 180 Inches, theſe tw Sums multiplied one into the other, is the Numbe of ſquare Inches in that piece of Timber. Whic found in the Table of 1728, or the next leaſt Sum and ſubtracted from the former Sum, as you ſee, th Remainder is 1296. Which ſeek in the little Tabl of the fractional Parts of a Foot, the Content wil be found 3 Foot, and 3 quarters in the piece

180
36

1080
540

6480

3 Foot 5148
3 q Inch. 1296

The Second Example. *Inches*

Eighteen Foot the length, —— 216
or nine ſquare, multiplied —— 81

216
1728

The Content in Inches —— 17496
Subtract —— 17280
The Fraction —— 216
The Content of the piece is ten Foot, and half a quarter.

The Third Example.

Length twenty Foot, or —— 240
Square fifteen, multiplied —— 225

1200
480
480

54000
53568
432

The Content is thirty one Foot, and one quarter of a Foot.

The Fourth Example.

Twenty one Inches ſquare.
Multiplied —————————— 441
Nine Foot length, or Inches ————— 108

3528
4410

The Content in Inches —————— 47628
The Content twenty ſeven Foot ——— 46656
The Fraction is —————————— 972
The whole Content is as before, twenty ſeven Foot, an half, and more.

The Fifth Example.

Twenty eight Inches ſquare ————— 784
Twenty ſeven Foot long —————— 324

3136
1568
2352

254016

This Number found in the Table of 1728, i 147 Foot, and no more, the Content of the piece.

Thi

This Table contains the Parts of a Foot of Timber of 1728 Inches, in the uſual Terms as followeth.

	Inches
HALF a quarter of a foot, is	216
A quarter of a foot	432
Quarter and half quarter	648
Half a foot	864
Half a foot, and half a quarter	1080
Three quarters	1296
Three quarters and half quarter	1512
One foot.	1728

The Table of 1728.

Iaches	*Feet*	*Inches*	*Feet*	*Inches*	*Feet*
1728	1	44928	26	88128	51
3456	2	46656	27	89856	52
5184	3	48384	28	91584	53
6912	4	50112	29	93312	54
8640	5	51840	30	95040	55
10368	6	53568	31	96768	56
12096	7	55296	32	98496	57
13824	8	57024	33	100224	58
15552	9	58752	34	101952	59
17280	10	60480	35	103680	60
19008	11	62208	36	105408	61
20736	12	63936	37	107136	62
22464	13	65664	38	108864	63
24192	14	67392	39	110592	64
25920	15	69120	40	112320	65
27648	16	70848	41	114048	66
29376	17	72576	42	115776	67
31104	18	74304	43	117504	68
32832	19	76032	44	119232	69
34560	20	77760	45	120960	70
36288	21	79488	46	122688	71
38016	22	81216	47	124416	72
39744	23	82944	48	126144	73
41472	24	84672	49	127872	74
43200	25	86400	50	129600	75

Inches
131328
153056
134784
136512
138240
139968
141696
143424
145152
146880
148608
150336
152064
153792
155520
157248
158976
160704
162432
164160
165888
167616
169344
171072
172800

The Table of 1728.

Inches	*Feet*	*Inches*	*Feet*	*Inches*	*Feet*
131328	76	174528	101	217728	126
153056	77	176256	102	219456	127
134784	78	177984	103	221184	128
136512	79	179712	104	222912	129
138240	80	181440	105	224640	130
139968	81	183168	106	226368	131
141696	82	184896	107	228096	132
143424	83	186624	108	229824	133
145152	84	188352	109	231552	134
146880	85	190080	110	233280	135
148608	86	191808	111	235008	136
150336	87	193536	112	236736	137
152064	88	195264	113	238464	138
153792	89	196992	114	240192	139
155520	90	198720	115	241920	140
157248	91	200448	116	243648	141
158976	92	202176	117	245376	142
160704	93	203904	118	247104	143
162432	94	205632	119	248832	144
164160	95	207360	120	250560	145
165888	96	209088	121	252288	146
167616	97	210816	122	254016	147
169344	98	212544	123	255744	148
171072	99	214272	124	257472	149
172800	100	216000	125	259200	150

The Table of 1728.

Inches	Feet	Inches	Feet
260928	151	304128	176
262656	152	305856	177
264384	153	307584	178
266112	154	309312	179
267840	155	311040	180
269568	156	312768	181
271296	157	314496	182
273024	158	316224	183
274752	159	317952	184
276480	160	319680	185
278208	161	321408	186
279936	162	323136	187
281664	163	324864	188
283392	164	326592	189
285120	165	328320	190
286848	166	330048	191
288576	167	331776	192
290304	168	333504	193
292032	169	335232	194
293760	170	336960	195
295488	171	338688	196
297216	172	340416	197
298944	173	342144	198
300672	174	343872	199
302400	175	345600	200

The

The Deſcription and Uſe of the Table of Multiplication, for the more ſpeedy Caſting up the Content of any Stock of Boards or Timber.

IN every Page is ſix Columns of Figures; the firſt on the left Hand in every Page begins at the Figure of 1, and proceeds downwards to 33. The Third Column in every Page proceeds from 34 downwards to 66; and the Fifth Column proceeds from 67 downwards to 100.

The Second Column of the firſt Page begins with the Figure of 2, and proceeds downward, adding the Figure of 2 to 66; and the Fourth Column from 68, proceeds down to 132; and the Sixth Column from 134, proceeds down to 200, and ſo every Page, the Second, and Fourth, and Sixth Columns increaſing, the Figure on the Top of the Page to 100 Places, and after to 190, and after from 200 to 1000, and from 1000 to 10000.

The Uſe we ſhall draw from the firſt Example of Board Meaſure, where a Board was given to be meaſured ſixteen Foot in length, and 15 Inches in breadth, the Content of that Board was found to be be 20 Foot. If there were 12 Boards of the ſame Stock, what is the Content in Feet of the twelve Boards? Turn to Page the 20 of the Table, and from 12 in the firſt Column, in a ſtraight Line in the ſecond Column is 240 Foot, the Content of the twelve Boards.

The Second Example.

The Board given was 16 Foot in length, and 8 Inches one quarter in breadth, the Content was 11 Foot. There was 8 Boards on the Stock; What was the Content of the 8 Boards? Look as befoae for 11 on the Head of the Table, and from 8 in the firſt, you ſhall find in the ſecond Column 88 Foot, the Content in Feet of the 8 Boards.

The Third Example.

The Board given was 28 Foot in length, and 17 Inches 3 quarters in breadth, the Content of that Board was 41 Foot $\frac{4166}{10000}$ of a Foot, which Fraction is one quarter and half a quarter of a Foot, and more.

There was 15 Boards of the ſame; What was the Content in Feet? Look as before, Page 41, and from 15 in the firſt Column, is 615 Foot in in the ſecond, and adding 15 quarters, and 15 half quarters, and more, as the Fraction doth expreſs, the Content of the 15 Boards will be 621 Foot, and more.

The Fourth Example.

The Board given was 32 Inches in breadth, and 37 Foot in length, the Content of that Board was 98 Foot, one half, and half a quarter; omitting the Fraction, take 98 Foot, the Content of one Board. Suppoſe 25 Boards on the Stock, look page 25, and from 98 in the 5th Column, in the 6th Column is 245 Foot, or look page 98, and from 25, you ſhall find as before 2450 Foot, the Content of the Stock of Boards.

* * *

Further Uſe of the Table of Multiplication, joined with the Table of Eoard Meaſure, applied to the Joyner, Plaiſterer, Painter, and Pavier's Uſe.

A Joiner hath made a piece of Wainſcot being 29 Foot in length, and 7 Foot three Inches in breadth; which piece of Wainſcot is ſold at a certain price for every ſquare yard in the ſame.

To know how many ſquare yards is in the ſame piece, look 29 on the head of the Table, and from 7 in the ſirſt Column, is 203 in the ſecond Column; then for the three Inches of breadth more, look in the Table of Board Meaſure at three Inches of breadth on the head of the Table, and from twenty nine Foot of length, you ſhall find 7 foot and one quarter,

quarter, which added to the former Sum, is 210 Foot one quarter.

Obſerve, That every yard ſquare of plain meaſure, is nine Foot ; therefore turn to page the ninth and look 210 of the next leaſt to it, which is 207, to which anſwers in the firſt Column 23. And ſo many ſquare yards is in that piece, and three foot one quarter more. If a Plaiſterer, or Painter, or Pavier, had wrought ſo many ſquare foot, there would be ſo many yards as before.

The Second Example.

Let there be given a piece of Wainſcot 34 foot in length, 7 foot 11 Inches ¼ in breadth, as before. Look 34 on the Head of the Table, and from 7 in the firſt Column, will be found 238 foot in the ſecond Column ; then for the reſt of the breadth, look in the Table of Board Meaſure for 11 Inches 1 quarter of breadth. And from 30 foot of length, the Content is 28 foot half a quarter ; and from 4 foot, the reſt of the length is 3 foot 3 quarters ; which makes 31 foot 3 quarters, being added to the former Sum 238 foot, makes 269 foot 3 quarters and half quarter of a foot.

To know how many ſquare yards as before, will be found 29 yards 8 foot 3 quarters and half quarter, near one yard more.

A Bricklayer hath made a Wall of 90 foot in length, and 7 foot 8 Inches in height, and deſires to know how many ſquare yards is in the ſame Wall. Look 7 on the Head of the Table, and from 90 you ſhall find 630 ; or look 90 in the head, and you ſhall find from 7 in the firſt Column, 630 in the ſecond ; then

then for 8 Inches of breadth, look page 8 of the Table of Board Meaſure, and from 30 foot of length, is 20 foot; three times 20 is 60 foot, the length of the Wall. So that the 8 Inches of breadth is 60 foot, which added to 630 foot, makes in all 690 foot. To know how many ſquare yards is, turn to page the ninth, and ſeek the juſt Number, or the next leaſt, which is 684, which is ſix foot leſs than 690. So you may conclude there is 76 ſquare yards, and 6 foot in the Wall.

The Table it ſelf is no other than a Table of the increaſe of the Figure or Figures on the Head of the Table, from one place to 100 places. As for Example, What is 26 times 44? Turn to page 26 of the Table, and from 44 is 1144, or turn to page 44, and from 26 is 1144; ſo may any two Figures be multiplied by any two Figures, and the Product found, as if I did multiply 86 by 86, what is the Product? Turn to page 86, and from 86 is 7396. And ſo of any Figure under 100 may the the Sum be found in this Table by Inſpection.

AND as this Table ſerves for Multiplication, ſo doth it ſerve alſo for Diviſion. If there were given 1144, to be divided by 26, turn to page 26, and from 1144, you ſhall ſind in the third Column 44 to be the Quotient, and ſo many times 26 is included in 1144. And if 1144 were given to be divided by 44, turn to page 44, and look the Number 1144, and over-againſt that, to the left hand, is 26, and ſo many times is 44 included in 1144.

If 7568 were given to be divided by 86, turn to page 86, and look the Sum, or next leaſt, you ſhall find the juſt Sum, and on the left hand 88, the juſt Quotient.

The Second Example.

```
66816 (2088
6411
 281
 2561
  256
  2561
  000
───────
66816
```

Let 66816 be given to be divided by 32, turn to page 32, and look the neareſt Figures in the ſecond Column to your two firſt Figures of your Dividend, which is 64, place them under 66 of your Dividend; and finding 2 in the firſt Column from 64, I place 2 for my Quotient, then ſubtract ſixty four from ſixty ſix, there remains two; then draw down the Figure of eight, and it is twenty eight, which is too little for thirty two. Therefore I place a Cypher in the Quotient, as in the Example, then I draw down the Figure of 1 to the 28, and it is 281; then I look in the Table of thirty two, and ſeek how many times thirty two is included in 281, I find 288 is too much; therefore I take it eight times, which is 256, which I place under 281, and place 8 in the Quotient, it is 208, then ſubtract 256 from 281, there remains 25; then do I draw down the laſt Figure of my Dividend, which makes the twenty five 256; then do I ſeek in the Table how many times 32 is included in 256, and find 8 times; which I place in my Quotient, and it is 2088.

Now

Now I place 256 under 256, and ſubtract the one from the other, and nothing doth remain, and the Diviſion ended.

To prove this Diviſion, if it be done true, add thoſe Sums taken out of the Table of 32, and the Remainder, if any be, if it prove the ſame Sum, then is the Diviſion true, otherwiſe falſe. See the Operation by which it appears to be true, having given a croſs to thoſe Numbers taken out of the Table.

This being done at four Operations, without charging the Memory, or trouble to find the Quotient.

The Third Example.

Let there be given Dividend 66832, Diviſor 32, as before; ſeek the greateſt Number to 668, which is 640. Set it down under the three firſt Figures of your Dividend, and ſubtract them, the Remainder is twenty eight, put twenty in the Quotient, being the Number anſwering 640; then draw down the two laſt Figures of your Dividend, and the 28, and them will be 2832; which ſeek in the Table as before, and the next leaſt is 2816, to which anſwers 88; which place in the Quotient, and it is 2088, then place 2816 under 2832, and ſubtract the one from the other, there will remain 16 which added to the Sums taken out of the Table, proves the Diviſion true, as you may ſee in the Operation.

```
66832 (2088
640†
 2832
 2816†
    16
──────
66832
```

The 16 remaining, if you add a Cypher to it, it will be 160, which if you look in the Table as before, you ſhall find 160, and in the firſt Column the Figure of five, which is five tenths of a Pound or Crown, or what Denomination the Dividend was of.

The Fourth Example.

426965 (5473 (910
42121
5765
56941
710

702
80
78
20

Let there be given for the Dividend 426965, the Diviſor 78, turn to page 78, and look the next leaſt Sum to your four firſt Figures, which is 4212, place them under the four firſt Figures of your Dividend, and place 54 in the Quotient, then ſubtract 2 from 9, reſt 7, and 1 from 6, reſt 5; then draw down the two Figures 6 and 5, and the Sum is 5765. Then look in Page 78 for the ſame Sum, or next leaſt is 5694, which I place under the former Sum, and ſubtract them, the Remainder is 71, place 73 in the Quotient, and the Sum is 5473; and the Diviſion ended, add a Cypher to 71, it is 710. Look page 78, for the next leaſt Sum is 702, to which 9 anſwered, place 9 as a Fraction, the ſubtract 702 from 710, there remains 8; add a 0, and it will be 80, then look in the Table, you can find it but one, place one in the Quotient, place 78 under 80, and ſubtract it, there remains 2, add a Cypher it is 20; then look as before in page 78, and finding

20 leſs than 78, I cannot take it out one, I put a 0 in the Quotient, and it is 910, or $\frac{916}{1000}$ parts the Fraction.

The Fifth Example.

Eighty four Men ſet forth a Ship, being returned home, hath gained 7266 pounds; to know what every Mans ſhare is, look page 84 for the juſt Sum, or next leaſt, which is 7224, to which Anſwers 86 Pound, and being ſubtracted from the former Sum, remains 42, to which I add a Cypher, and the Sum is 420, which I look as before in page 84, and find the juſt Sum; and in the firſt Column the Figure of five, which tells me that is five tenth parts of a Pound that every Man is to have, which is ten Shillings. So every Man's part of the gain, is eighty ſix Pound ten Shinllings.

7266 (86 (5
7224
420
420
———
000

The Sixth Example.

Let 20416 be given to be divided by 232. I cannot find 232 in 204. I find then how many times I can take it in 2041, I look in the Table of 200, and alſo in the Table for 32, and there in 200, I find at 8 times 200, 1600, and 8 times 32, is 256; which, added together, makes 1856; which

20416 (88
1856r
1856
1856r
0000
———
20416

which ſet under 2041, and ſubtracted, there remains 185, and my Quotient is 8, then draw down the Figure of 6, and then the Remainder is 1856. Then look in the Table of 200, and alſo of 32, and you ſhall find you may take it eight times, and nothing remains.

20416 (6
1764
2776

120
564

1764

20416)69 (442·B
1764r
2776
2646r
13000

11|761
1|240
1|176r
640
588r
52r

20416 |: 000

1·30

Let the ſame Number 20416 be divided by 294, look page 20 and 94, and you ſhall find from 200 for ſix times 1200, and ſix times 94 is 564, ſo thoſe 2 Numbers are 1764. You may put 6 in the Quotient, and ſubtract 1764 from 2041, and there will remain 277, and the Work ſtands thus, as you ſee in the Operation, then look as before, how many times you can take from 200, and alſo from 94 to take 2776, you ſhall ſee you may take it 9 times, put 9 in the Quotient, and ſubtract 2646 from 2776, and there will remain 130, and the Diviſion ended.

Then for the Fraction, add a Cypher, it is 1300, then look as before, how many times you can take 294 out of 1300, you ſhall find it four times and there will remain 124; then add a Cypher, to 124, it is 1240, then look as before, how many times you can

can find 294 in 1240, you may find it four times, put four in the Quotient, and ſubtract 1176 from 1240, there will remain 64 ; to which add a Cypher, and it is 640, then ſeek how many times you can take 294 out, and it will be two times, which is 588, which ſubtracted from 640, reſts 52, and the Work ſtands as in the Operation ; by which you may find by adding two or three Sums, the Quotient Figure of any Diviſor may be found out under 10000, and the Diviſion wrought by Subtraction.

The Rule of Three Direct and Reverſe.

AS this Table ſerves for *Multiplication*, and *Diviſion*, ſo doth every Page ſerve for the *Golden Rule*, or *Rule of Three Direct and Reverſe.*

The Firſt Example.

If I pay five pence a pound for Currans, what will 45 pound coſt? Turn to page 5, and from 45, you ſhall find 225 Pence: Look Page 12 for the ſame, or next leaſt Number to it, and you ſhall find to be 18 *s.* 9 *d.* the price. So at the ſame price, you may ſee what any Number of Pounds will coſt, under a 100 *l.* What will 87 *l.* coſt? 435 pence, which, in page the 12th, is found 36 *s.* 3 *d.* Again, if 45 Men do finiſh a piece of Work in five days, how long ſhall one Man be doing the ſame? Anſwer 225 Days. Again, if 87 Men do a Work in 225 Days, in how many Days ſhall 45 Men do the ſame, in 435 Days; in the ſame Page, if 24 Men build a Wall in 40 Days, in what time ſhall 8 Men do the ſame, in 120 Days, and ſo much of every Page.

A Factor ſold a Broad-cloth at 7 ſhillings 5 pence per yard, 37 yards in length, tnrn to page 7, and from 37 is 259 ſhillings; then for 5 pence, the reſt of the price, look page 5, and from 37, is 185 pence, which, in page the 12th, is 15 *s.* 5 *d.* which added

added to 259, makes 274 *s.* 5 *d.* Look page 20 for the ſame Sum, or next leaſt, is 260; which is 13 *l.* 16 *s.* 5 *d.* the price of the Cloth.

Another Cloth ſold at nine Shillings ſeven pence per Yard, thirty nine Yards in length, What comes the Cloth to? Turn to page thirty nine, and from 9 ſhall be 351 ſhillings, and from ſeven pence in the ſame page is 273 pence, which, in page the 12, is 22 ſhillings nine pence; which added to 351, make 373 *s.* 9 *d.* which, in page the 20th is 18 pounds 13 ſhillings and 9 pence. Either of theſe ways you may make uſe of as you pleaſe.

A third Cloth ſold at fourteen ſhillings four pence per Yard, 42 Yards in length: Look page 42, and from 14 *s.* is 588 *s.* and from 4 *d.* in the ſame page, is 168 pence, which in page the twelfth, is 14 *s.* which added to 588, makes 622 ſhillings, which in page 20, is found 31 *l.* 2 *s.*

At ſixteen pence one Ell of Canvas, what will forty Ells coſt? Turn to page ſixteen, and from forty is 640; which look in page twelve, or next leaſt, is 636, which is 53 ſhillings four pence. If the price had been ſixteen pence half penny the Ell, you may ſee at page 40 from 16, is 640 pence; and from a half yenny, which is two farthings, I find 80 farthings, or from one, 40 half pence, which is 20 pence, I look page 4, becauſe 4 farthings make a penny, for 80, and finding the juſt Sum I ſee 20 *d.* to anſwer, which makes the former Sum 660 pence, that is found in page 12, 55 ſhillings at 16 pence half penny the Ell, 40 Ells.

At two ſhillings 4 pence a pound Pepper, or 28 pence, what will 30 pound coſt? 840 pence, which is in page twelve, found ſeventy ſhillings, or three pound ten ſhillings; forty one pound will coſt 1148 pence,

pence, which is four pound ſeven ſhillings four pence the price.

At 8 pence a pound Ginger, what will ninety ſix pound coſt? Look page eight, and from 96 is 768 pence, which in page twelve is ſixty four ſhillings, or three pound four ſhillings the price.

At ſeven ſhillings three pence a pound Cloves, what will fifty ſix pound coſt? Look page 56, and from ſeven is 392 ſhillings, and from 3 is 168 pence, which is 14 ſhillings; which added to 392, make 406 ſhillings, which is twenty pound ſix ſhillings the price.

At 23 ſhillings 6 pence a piece Raiſins, what will 75 pieces coſt? Look page 75, and from 23, is 1725 ſhillings, and from 6 pence is 450 pence, which is 37 ſhillings 6 pence; which added to 1725, makes 1762 ſhillings 6 pence, which in page 20 is found 88 pound two ſhillings ſix pence the price.

A Graſier comes into a Market and buyeth ſo many young Beaſts of all ſorts, as came to 244 Nobles, at 4 Nobles a piece, one with the other, but doth not know how many Beaſts he hath, turn to page 4, and ſeek out the Number of Nobles laid out; and againſt 244 you ſhall find 61, and ſo many Beaſts he had; turn to page 3, and from 244, or the next leaſt is 243, one Noble leſs, to which doth anſwer 81 Pound and a Noble, as the 61 Beaſts coſt.

A Butcher comes into a Market and buyeth 20 Sheep at nine ſhillings a Sheep, and 20 at 7 ſhillings a Sheep. One other parcel, which he doth not remember how many they were, but remembers that they coſt him 8 ſhillings a piece, one with the other, and that all of them coſt 496 ſhillings. Look page

8, and from 496 you ſhall find 62, and ſo many Sheep he had ; look page 20 for 496 ſhillings, you ſhall find tweny four pounds ſixteen ſhillings, the price of 62 Sheep.

Of Meaſuring Land.

OF Meaſuring Land, obſerve a Statue Acre is 160 ſquare Perches, a Perch is 16 Foot and half ſquare. And ſo many times as 160 Perches is contained in any piece of Ground, ſo many Acres is the ſame. Know that 120 Perches is 3 quarters of an Acre, 80 Perches half an Acre, 40 Perches one quarter, and 20 Perches half a quarter of an Acre.

Having the length and breadth of a piece of Ground given in Perches, to find the Content in Acres and Perches ; let the length be 80 Perches, and the breadth 40 Perches, turn to Page 40, and from 80 is 3200 Perches, or turn to Page 80, and from 40 is 3200 as before ; then look in Page 160 for 320, and you ſhall find it to anſwer 20 Acres, the Content of that Field or piece of Ground.

Secondly, Let there be given a piece of Ground 84 Perches in length, and 47 Perches in breadth at one End, and 57 Perches at the other End ; add 47 and 57 together, and take half the Sum for the breadth, which is 52, then look page 52, and from 84, you ſhall find 4368 ; which Number I ſeek, or the next leaſt in page 160, and find it to be 27 Acres, and 48 Perches, which is one quarter of an Acre more, and 8 ſquare Perches ; or turn to Page 84, and from 52 is 4368, as before.

Meaſuring

Meaſuring a Triangle.

THE Baſe and Perpendicular being given to find the Content, the Baſe thirty Perches the Perpendicular fourteen Peaches, half the Perpendicular multiplied by the Baſe gives the Content, or half the Baſe by the whole Perpendicular, gives the Content ; turn to Page 30, and from 7, half the Perpendicular, is 210 Perches, which, in Page 160, is one Acre one quarter, and half a quarter and ten Perches.

Secondly, The Baſe ninety Perches in length, the Perpendicular ſixty eight Perches, the half thirty four Perches, look page ninety, and from 34, is 306; which, in page 106, is 19 Acres, and 5 Perches, which is half a quarter of one Acre more.

Thirdly, The Baſe of a Triangle 120 Perches, the Perpendicular eighty Perches, turn to page eighty, and from 60, half the Baſe, is 4800, which, found in poge 160, is thirty Acres and no more.

2		2		2	
1	2	34	68	67	134
2	4	35	70	68	136
3	6	36	72	69	138
4	8	37	74	70	140
5	10	38	76	71	142
6	12	39	78	72	144
7	14	40	80	73	146
8	16	41	82	74	148
9	18	42	84	75	150
10	20	43	86	76	152
11	22	44	88	77	154
12	24	45	90	78	156
13	26	46	92	79	158
14	28	47	94	80	160
15	30	48	96	81	162
16	32	49	98	82	164
17	34	50	100	83	166
18	36	51	102	84	168
19	38	52	104	85	170
20	40	53	106	86	172
21	42	54	108	87	174
22	44	55	110	88	176
23	46	56	112	89	178
24	48	57	114	90	180
25	50	58	116	91	182
26	52	59	118	92	184
27	54	60	120	93	186
28	56	61	122	94	188
29	58	62	124	95	190
30	60	63	126	96	192
31	62	64	128	97	194
32	64	65	130	98	196
33	66	66	132	99	198
				100	200

3		3		3	
1	3	34	102	67	201
2	6	35	105	68	204
3	9	36	108	69	207
4	12	37	111	70	210
5	15	38	114	71	213
6	18	39	117	72	216
7	21	40	120	73	219
8	24	41	123	74	222
9	27	42	126	75	225
10	30	43	129	76	228
11	33	44	132	77	231
12	36	45	135	78	234
13	39	46	138	79	237
14	42	47	141	80	240
15	45	48	144	81	243
16	48	49	147	82	246
17	51	50	150	83	249
18	54	51	153	84	252
19	57	52	156	85	255
20	60	53	159	86	258
21	63	54	162	87	261
22	66	55	165	88	264
23	69	56	168	89	267
24	72	57	171	90	270
25	75	58	174	91	273
26	78	59	177	92	276
27	81	60	180	93	279
28	84	61	183	94	282
29	87	62	186	95	285
30	90	63	189	96	288
31	93	64	192	97	291
32	96	65	195	98	294
33	99	66	198	99	297
				100	300

4		4		4	
1	4	34	136	67	268
2	8	35	140	68	272
3	12	36	144	69	276
4	16	37	148	70	280
5	20	38	152	71	284
6	24	39	156	72	288
7	28	40	160	73	292
8	32	41	164	74	296
9	36	42	168	75	300
10	40	43	172	76	304
11	44	44	176	77	308
12	48	45	180	78	312
13	52	46	184	79	316
14	56	47	188	80	320
15	60	48	192	81	324
16	64	49	196	82	328
17	68	50	200	83	332
18	72	51	204	84	336
19	76	52	208	85	340
20	80	53	212	86	344
21	84	54	216	87	348
22	88	55	220	88	352
23	92	56	224	89	356
24	96	57	228	90	360
25	100	58	232	91	364
26	104	59	236	92	168
27	108	60	240	93	172
28	112	61	244	94	176
29	116	62	248	95	380
30	120	63	252	96	384
31	124	64	256	97	388
32	128	65	260	98	392
33	132	66	264	99	396
				100	400

5		5		5	
1	5	34	170	67	335
2	10	35	175	68	340
3	15	36	180	69	345
4	20	37	185	70	350
5	25	38	190	71	355
6	30	39	195	72	360
7	35	40	200	73	365
8	40	41	205	74	370
9	45	42	210	75	375
10	50	43	215	76	380
11	55	44	220	77	385
12	60	45	225	78	390
13	65	46	230	79	395
14	70	47	235	80	400
15	75	48	240	81	405
16	80	49	245	82	410
17	85	50	250	83	415
18	90	51	255	84	420
19	95	52	260	85	425
20	100	53	265	86	430
21	105	54	270	87	435
22	110	55	275	88	440
23	115	56	280	89	445
24	120	57	285	90	450
25	125	58	290	91	455
26	130	59	295	92	460
27	135	60	300	93	465
28	140	61	305	94	470
29	145	62	310	95	475
30	150	63	315	96	480
31	155	64	320	97	485
32	160	65	325	98	490
33	165	66	330	99	495
				100	500

6		6		6	
1	6	34	204	67	402
2	12	35	210	68	408
3	18	36	216	69	414
4	24	37	222	70	420
5	30	38	228	71	426
6	36	39	234	72	432
7	42	40	240	73	438
8	48	41	246	74	444
9	54	42	252	75	450
10	60	43	258	76	456
11	66	44	264	77	462
12	72	45	270	78	468
13	78	46	276	79	474
14	84	47	282	80	480
15	90	48	288	81	486
16	96	49	294	82	492
17	102	50	300	83	498
18	108	51	306	84	504
19	114	52	312	85	510
20	120	53	318	86	516
21	126	54	324	87	522
22	132	55	330	88	528
23	138	56	336	89	534
24	144	57	342	90	540
25	150	58	348	91	546
26	156	59	354	92	552
27	162	60	360	93	558
28	168	61	366	94	564
29	174	62	372	95	570
30	180	63	378	96	576
31	186	64	384	97	582
32	192	65	390	98	588
33	198	66	396	99	594
				100	600

7		7		7	
1	7	34	138	67	469
2	14	35	245	68	476
3	21	36	252	69	483
4	28	37	259	70	490
5	35	38	266	71	497
6	42	39	273	71	504
7	49	40	280	73	511
8	56	41	287	74	518
9	63	42	294	75	525
10	70	43	301	76	532
11	77	44	308	77	539
12	84	45	315	78	546
13	91	46	322	79	553
14	98	47	329	80	560
15	105	48	336	81	567
16	112	49	343	82	574
17	119	50	350	83	581
18	126	51	357	84	588
19	133	52	364	85	595
20	140	53	371	85	602
21	147	54	378	87	609
22	154	55	385	88	616
23	161	56	392	89	623
24	168	57	399	90	630
25	175	58	406	91	637
26	182	59	413	91	644
27	189	60	420	93	651
28	196	61	427	94	658
29	203	62	434	95	665
30	210	63	441	96	672
31	217	64	448	97	679
32	224	65	455	98	686
33	231	66	462	99	693
				100	700

8
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33

8		8		8	
1	8	34	272	67	536
2	16	35	280	68	544
3	24	36	288	69	552
4	32	37	296	70	560
5	40	38	304	71	568
6	48	39	312	72	576
7	56	40	320	73	584
8	64	41	328	74	592
9	72	42	336	75	600
10	80	43	344	76	608
11	88	44	352	77	616
12	96	45	360	78	624
13	104	46	368	79	632
14	112	47	376	80	640
15	120	48	384	81	648
16	128	49	392	82	656
17	136	50	400	83	664
18	144	51	408	84	672
19	152	52	416	85	680
20	160	53	424	86	688
21	168	54	432	87	696
22	176	55	440	88	704
23	184	56	448	89	712
24	192	57	456	90	720
25	200	58	464	91	728
26	208	59	472	92	736
27	216	60	480	93	744
28	224	61	488	94	752
29	232	62	496	95	760
30	240	63	504	96	768
31	248	64	512	97	776
32	256	65	520	98	784
33	264	66	528	99	792
				100	800

9		9		9	
1	9	34	306	67	603
2	18	35	315	68	612
3	27	36	324	69	621
4	36	37	333	70	630
5	45	38	342	71	639
6	54	39	351	72	648
7	63	40	360	73	657
8	72	41	369	74	666
9	81	42	378	75	675
10	90	43	387	76	684
11	99	44	396	77	693
12	108	45	405	78	702
13	117	46	414	79	711
14	126	47	423	80	720
15	135	48	432	81	729
16	144	49	441	82	738
17	153	50	450	83	747
18	162	51	459	84	756
19	171	52	468	85	765
20	180	53	477	86	774
21	189	54	486	87	783
22	198	55	495	88	792
23	207	56	504	89	801
24	216	57	513	90	810
25	225	58	522	91	819
26	234	59	531	92	828
27	243	60	540	93	837
28	252	61	549	94	846
29	261	62	558	95	855
30	270	63	567	96	864
31	279	64	576	97	873
32	288	65	585	98	882
33	297	66	594	99	891
				100	900

10		10		10	
1	10	34	340	67	670
2	20	35	350	68	680
3	30	36	360	69	690
4	40	37	370	70	700
5	50	38	380	71	710
6	60	39	390	72	720
7	70	40	400	73	730
8	80	41	410	74	740
9	90	42	420	75	750
10	100	43	430	76	760
11	110	44	440	77	770
12	120	45	450	78	780
13	130	46	460	79	790
14	140	47	470	80	800
15	150	48	480	81	810
16	160	49	490	82	820
17	170	50	500	83	830
18	180	51	510	84	840
19	190	52	520	85	850
20	200	53	530	86	860
21	210	54	540	87	870
22	220	55	550	88	880
23	230	56	560	89	890
24	240	57	570	90	900
25	250	58	580	91	910
26	260	59	590	92	920
27	270	60	600	93	930
28	280	61	610	94	940
29	290	62	620	95	950
30	300	63	630	96	960
31	310	64	640	97	970
32	320	65	650	98	980
33	330	66	660	99	990
				100	1000

11		11		11	
1	11	34	374	67	737
2	22	35	385	68	748
3	33	36	396	69	759
4	44	37	407	70	770
5	55	38	418	71	781
6	66	39	429	72	792
7	77	40	440	73	803
8	88	41	451	74	814
9	99	42	462	75	825
10	110	43	473	76	836
11	121	44	484	77	747
12	132	45	495	78	858
13	143	46	506	79	869
14	154	47	517	80	880
15	165	48	528	81	891
16	176	49	539	82	902
17	187	50	550	83	913
18	198	51	561	84	924
19	209	52	572	85	935
20	220	53	583	86	946
21	231	54	594	87	957
22	242	55	605	88	968
23	253	56	616	89	979
24	264	57	627	90	990
25	275	58	638	91	1001
26	286	59	649	92	1012
27	297	60	660	93	1023
28	308	61	671	94	1034
29	319	62	682	95	1045
30	330	63	693	96	1056
31	341	64	704	97	1067
32	352	65	715	98	1078
33	363	66	726	99	1089
				100	1100

12		12		12	
1	12	34	408	67	804
2	24	35	420	68	816
3	36	36	432	69	828
4	48	37	444	70	840
5	60	38	456	71	852
6	72	39	468	72	864
7	84	40	480	73	876
8	96	41	492	74	888
9	108	42	504	75	900
10	120	43	516	76	912
11	132	44	528	77	924
12	144	45	540	78	936
13	156	46	552	79	948
14	168	47	564	80	960
15	180	48	576	81	972
16	192	49	588	82	984
17	204	50	600	83	996
18	216	51	612	84	1008
19	228	52	624	85	1020
20	240	53	636	86	1032
21	252	54	648	87	1044
22	264	55	660	88	1056
23	276	56	672	89	1068
24	288	57	684	90	1080
25	300	58	695	91	1092
26	312	59	703	92	1104
27	324	60	720	93	1116
28	336	61	732	94	1128
29	348	62	744	95	1140
30	360	63	756	96	1152
31	372	64	768	97	1164
32	384	65	780	98	1176
33	396	66	792	99	1188
				100	1200

13		13		13	
1	13	34	442	67	871
2	26	35	455	68	884
3	39	36	468	69	897
4	52	37	481	70	910
5	65	38	494	71	923
6	78	39	507	72	936
7	91	40	520	73	949
8	104	41	533	74	962
9	117	42	546	75	975
10	130	43	559	76	988
11	143	44	572	77	1001
12	156	45	585	78	1014
13	169	46	598	79	1027
14	182	47	611	80	1040
15	195	48	624	81	1053
16	208	49	637	82	1066
17	221	50	650	83	1079
18	234	51	663	84	1092
19	247	52	676	85	1105
20	260	53	689	86	1118
21	273	54	702	87	1131
22	286	55	715	88	1144
23	299	56	728	89	1157
24	312	57	741	90	1170
25	325	58	754	91	1183
26	338	59	767	92	1196
27	351	60	780	93	1209
28	364	61	793	94	1222
29	377	62	806	95	1235
30	390	63	819	96	1248
31	403	64	832	97	1261
32	416	65	845	98	1274
33	429	66	858	99	1287
				100	1300

14		14		14	
1	14	34	476	67	938
2	28	35	490	68	952
3	42	36	504	69	966
4	56	37	518	70	980
5	70	38	532	71	994
6	84	39	546	72	1008
7	98	40	560	73	1022
8	112	41	574	74	1036
9	126	42	588	75	1050
10	140	43	602	76	1064
11	154	44	616	77	1078
12	168	45	630	78	1092
13	182	46	644	79	1106
14	196	47	658	80	1120
15	210	48	672	81	1134
16	224	49	686	82	1148
17	238	50	700	83	1162
18	252	51	714	84	1176
19	266	52	728	85	1190
20	280	53	742	86	1204
21	294	54	756	87	1218
22	308	55	770	88	1232
23	322	56	784	89	1246
24	336	57	798	90	1260
25	350	58	812	91	1274
26	364	59	826	92	1288
27	378	60	840	93	1302
28	392	61	854	94	1316
29	406	62	868	95	1330
30	420	63	882	96	1344
31	434	64	896	97	1358
32	448	65	910	98	1372
33	462	66	924	99	1386
				100	1400

15		15		15	
1	15	34	510	67	1005
2	30	35	525	68	1020
3	45	36	540	69	1035
4	60	37	555	70	1050
5	75	38	570	71	1065
6	90	39	585	72	1080
7	105	40	600	73	1095
8	120	41	615	74	1110
9	135	42	630	75	1125
10	150	43	645	76	1140
11	165	44	660	77	1155
12	180	45	675	78	1170
13	195	46	690	79	1185
14	210	47	705	80	1200
15	225	48	720	81	1215
16	240	49	735	82	1230
17	255	50	750	83	1245
18	270	51	765	84	1260
19	285	52	780	85	1275
20	300	53	795	86	1290
21	315	54	810	87	1305
22	330	55	825	88	1320
23	345	56	840	89	1335
24	360	57	855	90	1350
25	375	58	870	91	1365
26	390	59	885	92	1380
27	405	60	900	93	1395
28	420	61	915	94	1410
29	435	62	930	95	1425
30	450	63	945	96	1440
31	465	64	960	97	1455
32	480	65	975	98	1470
33	495	66	990	99	1485
				100	1500

16		16		16	
1	16	34	544	67	1072
2	32	35	560	68	1088
3	48	36	576	69	1104
4	64	37	592	70	1120
5	80	38	608	71	1136
6	96	39	624	72	1152
7	112	40	640	73	1168
8	128	41	656	74	1184
9	144	42	672	75	1200
10	160	43	688	76	1216
11	176	44	704	77	1232
12	192	45	720	78	1248
13	208	46	736	79	1264
14	224	47	752	80	1280
15	240	48	768	81	1296
16	256	49	784	82	1312
17	272	50	800	83	1328
18	288	51	816	84	1344
19	304	52	832	85	1360
20	320	53	848	86	1376
21	336	54	864	87	1392
22	352	55	880	88	1408
23	368	56	896	89	1424
24	384	57	912	90	1440
25	400	58	928	91	1456
26	416	59	944	92	1472
27	432	60	960	93	1488
28	448	61	976	94	1504
29	464	62	992	95	1520
30	480	63	1008	96	1536
31	496	64	1024	97	1552
32	512	65	1040	98	1568
33	528	66	1056	99	1584
				100	1600

17		17		17	
1	17	34	578	67	1139
2	34	35	595	68	1156
3	51	36	612	69	1173
4	68	37	629	70	1190
5	85	38	646	71	1207
6	102	39	663	72	1224
7	119	40	680	73	1241
8	136	41	697	74	1258
9	153	42	714	75	1275
10	170	43	731	76	1292
11	187	44	748	77	1309
12	204	45	765	78	1326
13	221	46	782	79	1343
14	238	47	799	80	1360
15	255	48	816	81	1377
16	272	49	833	82	1394
17	289	50	850	83	1411
18	306	51	867	84	1428
19	323	52	884	85	1445
20	340	53	901	86	1462
21	357	54	918	87	1479
22	374	55	935	88	1496
23	391	56	952	89	1513
24	408	57	969	90	1530
25	425	58	986	91	1547
26	442	59	1003	92	1564
27	459	60	1020	93	1581
28	476	61	1037	94	1598
29	493	62	1054	95	1615
30	410	63	1071	96	1632
31	527	64	1088	97	1649
32	544	65	1105	98	1666
33	561	66	1122	99	1683
				100	1700

18		18		18	
1	18	34	612	67	1206
2	36	35	630	68	1224
3	54	36	648	69	1242
4	72	37	666	70	1260
5	90	38	684	71	1278
6	108	39	702	72	1296
7	126	40	720	73	1314
8	144	41	738	74	1332
9	162	42	756	75	1350
10	180	43	774	76	1368
11	198	44	792	77	1386
12	216	45	810	78	1404
13	234	46	828	79	1422
14	252	47	846	80	1440
15	270	48	864	81	1458
16	288	49	882	82	1476
17	306	50	900	83	1494
18	324	51	918	84	1512
19	342	52	936	85	1530
20	360	53	954	86	1548
21	378	54	972	87	1566
22	396	55	990	88	1584
23	414	56	1008	89	1602
24	432	57	1026	90	1620
25	450	58	1044	91	1638
26	468	59	1062	92	1656
27	486	60	1080	93	1674
28	504	61	1098	94	1692
29	522	62	1116	95	1710
30	540	63	1134	96	1728
31	558	64	1152	97	1746
32	576	65	1170	98	1764
33	594	66	1188	99	1782
				100	1800

19		19		19	
1	19	34	646	67	1273
2	38	35	665	68	1292
3	57	36	684	69	1311
4	76	37	703	70	1330
5	95	38	722	71	1349
6	114	39	741	72	1368
7	133	40	760	73	1387
8	152	41	779	74	1406
9	171	42	798	75	1425
10	190	43	817	76	1444
11	209	44	836	77	1463
12	228	45	855	78	1482
13	247	46	874	79	1501
14	266	47	893	80	1520
15	285	48	912	81	1539
16	304	49	931	82	1558
17	323	50	950	83	1577
18	342	51	969	84	1596
19	361	52	988	85	1615
20	380	53	1007	86	1634
21	399	54	1026	87	1653
22	418	55	1045	88	1672
23	437	56	1064	89	1691
24	456	57	1083	90	1710
25	475	58	1102	91	1729
26	494	59	1121	92	1748
27	513	60	1140	93	1767
28	532	61	1159	94	1786
29	551	62	1178	95	1805
30	570	63	1197	96	1824
31	589	64	1216	97	1843
32	608	65	1235	98	1862
33	627	66	1254	99	1881
				100	1900

20		20		20	
1	20	34	680	67	1340
2	40	35	700	68	1360
3	60	36	720	69	1380
4	80	37	740	70	1400
5	100	38	760	71	1420
6	120	39	780	72	1440
7	140	40	800	73	1460
8	160	41	820	74	1480
9	180	42	840	75	1500
10	200	43	860	76	1520
11	220	44	880	77	1540
12	240	45	900	78	1560
13	260	46	920	79	1580
14	280	47	940	80	1600
15	300	48	960	81	1620
16	320	49	980	82	1640
17	340	50	1000	83	1660
18	360	51	1020	84	1680
19	380	52	1040	85	1700
20	400	53	1060	86	1720
21	420	54	1080	87	1740
22	440	55	1100	88	1760
23	460	56	1120	89	1780
24	480	57	1140	90	1800
25	500	58	1160	91	1820
26	520	59	1180	92	1840
27	540	60	1200	93	1860
28	560	61	1220	94	1880
29	580	62	1240	95	1900
30	600	63	1260	96	1920
31	620	64	1280	97	1940
32	640	65	1300	98	1960
33	660	66	1320	99	1980
				100	2000

21		21		21	
1	21	34	714	67	1407
2	42	35	735	68	1428
3	63	36	756	69	1449
4	84	37	777	70	1470
5	105	38	798	71	1491
6	126	39	819	72	1512
7	147	40	840	73	1533
8	168	41	861	74	1554
9	189	42	882	75	1575
10	210	43	903	76	1596
11	231	44	924	77	1617
12	252	45	945	78	1638
13	273	46	966	79	1659
14	294	47	987	80	1680
15	315	48	1008	81	1701
16	336	49	1029	82	1722
17	357	50	1050	83	1743
18	378	51	1071	84	1764
19	399	52	1092	85	1785
20	420	53	1113	86	1806
21	441	54	1134	87	1827
22	462	55	1155	88	1848
23	483	56	1176	89	1869
24	504	57	1197	90	1890
25	525	58	1218	91	1911
26	546	59	1239	92	1932
27	567	60	1260	93	1953
28	588	61	1281	94	1974
29	609	62	1302	95	1995
30	630	63	1323	96	2016
31	651	64	1344	97	2037
32	672	65	1365	98	2058
33	693	66	1386	99	2079
				100	2100

22		22		22	
1	22	34	748	67	1474
2	44	35	770	68	1496
3	66	36	792	69	1518
4	88	37	814	70	1540
5	110	38	836	71	1562
6	132	39	858	72	1584
7	154	40	880	73	1606
8	176	41	902	74	1628
9	198	42	924	75	1650
10	220	43	946	76	1672
11	242	44	968	77	1694
12	264	45	990	78	1716
13	286	46	1012	79	1738
14	308	47	1034	80	1760
15	330	48	1056	81	1782
16	352	49	1078	82	1804
17	374	50	1100	83	1826
18	396	51	1122	84	1848
19	418	52	1144	85	1870
20	440	53	1166	86	1892
21	462	54	1188	87	1914
22	484	55	1210	88	1936
23	506	56	1232	89	1958
24	528	57	1254	90	1980
25	550	58	1276	91	2002
26	572	59	1298	92	2024
27	594	60	1320	93	2046
28	616	61	1342	94	2068
29	638	62	1364	95	2090
30	660	63	1386	96	2112
31	682	64	1408	97	2134
32	704	65	1430	98	2156
33	726	66	1452	99	2178
				100	2200

23		22		23	
1	23	34	782	67	1541
2	46	35	805	68	1554
3	69	36	828	69	1587
4	92	37	851	70	1610
5	115	38	874	71	1633
6	138	39	897	72	1656
7	161	40	920	73	1679
8	184	41	943	74	1702
9	207	42	965	75	1725
10	230	43	989	76	1748
11	253	44	1012	77	1771
12	276	45	1035	78	1794
13	299	46	1058	79	1817
14	322	47	1081	80	1840
15	345	48	1104	81	1863
16	368	49	1127	82	1886
17	391	50	1150	83	1909
18	414	51	1173	84	1932
19	437	52	1196	85	1955
20	460	53	1219	86	1978
21	483	54	1242	87	2001
22	506	55	1265	88	2024
23	529	56	1288	89	2047
24	552	57	1311	90	2070
25	575	58	1334	91	2093
26	598	59	1357	92	2116
27	621	60	1380	93	2139
28	644	61	1403	94	2162
29	667	62	1426	95	2185
30	690	63	1449	96	2208
31	713	64	1472	97	2231
32	736	65	1495	98	2254
33	759	66	1518	99	2277
				100	2300

24		24		24	
1	24	34	816	67	1608
2	48	35	840	68	1632
3	72	36	864	69	1656
4	96	37	888	70	1680
5	120	38	912	71	1704
6	144	39	936	72	1728
7	168	40	960	73	1752
8	192	41	984	74	1776
9	216	42	1008	75	1800
10	240	43	1032	76	1824
11	264	44	1056	77	1848
12	288	45	1080	78	1872
13	312	46	1104	79	1896
14	336	47	1128	80	1920
15	360	48	1152	81	1944
16	384	49	1176	82	1968
17	408	50	1200	83	1992
18	432	51	1224	84	2016
19	456	52	1248	85	2040
20	480	53	1272	86	2064
21	504	54	1296	87	2088
22	528	55	1320	88	2112
23	552	56	1344	89	2136
24	576	57	1368	90	2160
25	600	58	1392	91	2184
26	624	59	1416	92	2208
27	648	60	1440	93	2232
28	672	61	1464	94	2256
29	696	62	1488	95	2280
30	720	63	1512	96	2304
31	744	64	1536	97	2328
32	768	65	1560	98	2352
33	792	66	1584	99	2376
				100	2400

25		25		25	
1	25	34	850	67	1675
2	50	35	875	68	1700
3	75	36	900	69	1725
4	100	37	925	70	1750
5	125	38	950	71	1775
6	150	39	975	72	1800
7	175	40	1000	73	1825
8	200	41	1025	74	1850
9	225	42	1050	75	1875
10	250	43	1075	76	1900
11	275	44	1100	77	1925
12	300	45	1125	78	1950
13	325	46	1150	79	1975
14	350	47	1175	80	2000
15	375	48	1200	81	2025
16	400	49	1225	82	2050
17	425	50	1250	83	2075
18	450	51	1275	84	2100
19	475	52	1300	85	2125
20	500	53	1325	86	2150
21	525	54	1350	87	2175
22	550	55	1375	88	2200
23	575	56	1400	89	2225
24	600	57	1425	90	2250
25	625	58	1450	91	2275
26	650	59	1475	92	2300
27	675	60	1500	93	2325
28	700	61	1525	94	2350
29	725	62	1550	95	2375
30	750	63	1575	96	2400
31	775	64	1600	97	2425
32	800	65	1625	98	2450
33	825	66	1650	99	2475
				100	2500

26		26		26	
1	26	34	884	67	1742
2	52	35	910	68	1768
3	78	36	936	69	1794
4	104	37	962	70	1820
5	130	38	988	71	1846
6	156	39	1014	72	1872
7	182	40	1040	73	1898
8	208	41	1066	74	1924
9	234	42	1092	75	1950
10	260	43	1118	76	1976
11	286	44	1144	77	2002
12	312	45	1170	78	2028
13	338	46	1196	79	2054
14	364	47	1222	80	2080
15	390	48	1248	81	2106
16	416	49	1274	82	2132
17	442	50	1300	83	2158
18	468	51	1326	84	2184
19	494	52	1352	85	2210
20	520	53	1378	86	2236
21	546	54	1404	87	2262
22	572	55	1430	88	2288
23	598	56	1456	89	2314
24	624	57	1482	90	2340
25	650	58	1508	91	2366
26	676	59	1534	92	2392
27	702	60	1560	93	2418
28	728	61	1586	94	2444
29	754	62	1612	95	2470
30	780	63	1638	96	2496
31	806	64	1664	97	2522
32	832	65	1690	98	2548
33	858	66	1716	99	2574
				100	2600

27		27		27	
1	27	34	918	67	1809
2	54	35	945	68	1836
3	81	36	972	69	1863
4	108	37	999	70	1890
5	135	38	1026	71	1917
6	162	39	1053	72	1944
7	189	40	1080	73	1971
8	216	41	1107	74	1998
9	243	42	1134	75	2025
10	270	43	1161	76	2052
11	297	44	1188	77	2079
12	324	45	1215	78	2106
13	351	46	1242	79	2133
14	378	47	1269	80	2160
15	405	48	1296	81	2187
16	432	49	1323	82	2214
17	459	50	1350	83	2241
18	486	51	1377	84	2268
19	513	52	1404	85	2295
20	540	53	1431	86	2322
21	567	54	1458	87	2349
22	594	55	1485	88	2376
23	621	56	1512	89	2403
24	648	57	1539	90	2430
25	675	58	1566	91	2457
26	702	59	1593	92	2484
27	729	60	1620	93	2511
28	756	61	1647	94	2538
29	783	62	1674	95	2565
30	810	63	1701	96	2592
31	837	64	1728	97	2619
32	864	65	1755	98	2646
33	891	66	1782	99	2673
				100	2700

28		28		28	
1	28	34	952	67	1876
2	56	35	980	68	1904
3	84	36	1008	69	1932
4	112	37	1036	70	1960
5	140	38	1064	71	1988
6	168	39	1092	72	2016
7	196	40	1120	73	2044
8	224	41	1148	74	2072
9	252	42	1176	75	2100
10	280	43	1204	76	2128
11	308	44	1232	77	2156
12	336	45	1260	78	2184
13	364	46	1288	79	2212
14	392	47	1316	80	2240
15	420	48	1344	81	2268
16	448	49	1372	82	2296
17	476	50	1400	83	2324
18	504	51	1428	84	2352
19	532	52	1456	85	2380
20	560	53	1484	86	2408
21	588	54	1512	87	2436
22	616	55	1540	88	2464
23	644	56	1568	89	2492
24	672	57	1596	90	2520
25	700	58	1624	91	2548
26	728	59	1652	92	2576
27	756	60	1680	93	2604
28	784	61	1708	94	2632
29	812	62	1736	95	2660
30	840	63	1764	96	2688
31	868	64	1792	97	2716
32	896	65	1820	98	2744
33	924	66	1848	99	2772
				100	2800

29		29		29	
1	29	34	986	67	1943
2	58	35	1015	68	1972
3	87	36	1044	69	2001
4	116	37	1073	70	2030
5	145	38	1102	71	2059
6	174	39	1131	72	2088
7	203	40	1160	73	2117
8	232	41	1189	74	2146
9	261	42	1218	75	2175
10	290	43	1247	76	2204
11	319	44	1276	77	2233
12	348	45	1305	78	2262
13	377	46	1334	79	2291
14	406	47	1363	80	2320
15	435	48	1392	81	2349
16	464	49	1421	82	2378
17	493	50	1450	83	2407
18	522	51	1479	84	2436
19	551	52	1508	85	2465
20	580	53	1537	86	2494
[illegible]	609	54	1566	87	2523
22	638	55	1595	88	2552
23	667	56	1624	89	2581
24	696	57	1653	90	2610
25	725	58	1682	91	2639
26	754	59	1711	92	2668
27	783	60	1740	93	2697
28	812	61	1769	94	2726
29	841	62	1798	95	2755
30	870	63	1827	96	2784
31	899	64	1856	97	2813
32	928	65	1885	98	2842
33	957	66	1914	99	2871
				100	2900

30		30		30	
1	30	34	1020	67	2010
2	60	35	1050	68	2040
3	90	36	1080	69	2070
4	120	37	1110	70	2100
5	150	38	1140	71	2130
6	180	39	1170	72	2160
7	210	40	1200	73	2190
8	240	41	1230	74	2220
9	270	42	1260	75	2250
10	300	43	1290	76	2280
11	330	44	1320	77	2310
12	360	45	1350	78	2340
13	390	46	1380	79	2370
14	420	47	1410	80	2400
15	450	48	1440	81	2430
16	480	49	1470	82	2460
17	510	50	1500	83	2490
18	540	51	1530	84	2520
19	570	52	1560	85	2550
20	600	53	1590	86	2580
21	630	54	1620	87	2610
22	660	55	1650	88	2640
23	690	56	1680	89	2670
24	720	57	1710	90	2700
25	750	58	1740	91	2730
26	780	59	1770	92	2760
27	810	60	1800	93	2790
28	840	61	1830	94	2820
29	870	62	1860	95	2850
30	900	63	1890	96	2880
31	930	64	1920	97	2910
32	960	65	1950	98	2940
33	990	66	1980	99	2970
				100	3000

31		31		31	
1	31	34	1054	67	2077
2	62	35	1085	68	2108
3	93	36	1116	69	2139
4	124	37	1147	70	2170
5	155	38	1178	71	2201
6	186	39	1209	72	2232
7	217	40	1240	73	2263
8	248	41	1271	74	2294
9	279	42	1302	75	2325
10	310	43	1333	76	2356
11	341	44	1364	77	2387
12	372	45	1395	78	2418
13	403	46	1426	79	2449
14	434	47	1457	80	2480
15	465	48	1488	81	2511
16	496	49	1519	82	2542
17	527	50	1550	83	2573
18	558	51	1581	84	2604
19	589	52	1612	85	2635
20	620	53	1643	86	2666
21	651	54	1674	87	2697
22	682	55	1705	88	2728
23	713	56	1736	89	2759
24	744	57	1767	90	2790
25	775	58	1798	91	2821
26	806	59	1829	92	2852
27	837	60	1860	93	2883
28	868	61	1891	94	2914
29	899	62	1922	95	2945
30	930	63	1953	96	2976
31	961	64	1984	97	3007
32	992	65	2015	98	3038
33	1023	66	2046	99	3069
				100	3100

32
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33

32		32		32	
1	32	34	1088	67	2144
2	64	35	1120	68	2176
3	96	36	1152	69	2208
4	128	37	1184	70	2240
5	160	38	1216	71	2272
6	192	39	1248	72	2304
7	224	40	1280	73	2336
8	256	41	1312	74	2368
9	288	42	1344	75	2400
10	320	43	1376	76	2422
11	352	44	1408	77	2464
12	384	45	1440	78	2496
13	416	46	1472	79	2528
14	448	47	1504	80	2560
15	480	48	1536	81	2592
16	512	49	1568	82	2624
17	544	50	1600	83	2656
18	576	51	1632	84	2688
19	608	52	1664	85	2720
20	640	53	1696	86	2752
21	672	54	1728	87	2784
22	704	55	1760	88	2816
23	736	56	1702	89	2848
24	768	57	1824	90	2880
25	800	58	1756	91	2912
26	832	59	1888	92	2944
27	864	60	1920	93	2976
28	896	61	1952	94	3008
29	928	62	1984	95	3040
30	960	63	2016	96	3072
31	992	64	2048	97	3104
32	1024	65	2080	98	3136
33	1056	66	2112	99	3168
				100	3200

33		33		33	
1	33	34	1122	67	2211
2	66	35	1155	68	2244
3	99	36	1188	69	2277
4	132	37	1221	70	2310
5	165	38	1254	71	2343
6	198	39	1287	72	2376
7	231	40	1320	73	2409
8	264	41	1353	74	2442
9	297	42	1386	75	2475
10	330	43	1419	76	2508
11	363	44	1452	77	2541
12	396	45	1485	78	2574
13	429	46	1518	79	2607
14	462	47	1551	80	2640
15	495	48	1584	81	2673
16	528	49	1617	82	2706
17	561	50	1650	83	2739
18	594	51	1683	84	2772
19	627	52	1716	85	2805
20	660	53	1749	86	2838
21	693	54	1782	87	2871
22	726	55	1815	88	2904
23	759	56	1848	89	2937
24	792	57	1881	90	2970
25	825	58	1914	91	3003
26	858	59	1947	92	3036
27	891	60	1980	93	3069
28	924	61	2013	94	3102
29	957	62	2046	95	3135
30	990	63	2079	96	3168
31	1023	64	2112	97	3201
32	1056	65	2145	98	3234
33	1089	66	2178	99	3267
				100	3300

34		34		34	
1	34	34	1156	67	2278
2	68	35	1190	68	2312
3	102	36	1224	69	2346
4	136	37	1258	70	2380
5	170	38	1292	71	2414
6	204	39	1326	72	2448
7	238	40	1360	73	2482
8	272	41	1394	74	2516
9	306	42	1428	75	2550
10	340	43	1462	76	2584
11	374	44	1496	77	2618
12	408	45	1530	78	2652
13	442	46	1564	79	2686
14	476	47	1598	80	2720
15	510	48	1632	81	2754
16	544	49	1666	82	2788
17	578	50	1700	83	2822
18	612	51	1734	84	2856
19	646	52	1768	85	2890
20	680	53	1802	86	2924
21	714	54	1836	87	2958
22	748	55	1870	88	2992
23	782	56	1904	89	3026
24	816	57	1938	90	3060
25	850	58	1972	91	3094
26	884	59	2006	92	3128
27	918	60	2040	93	3162
28	952	61	2074	94	3196
29	986	62	2108	95	3230
30	1020	63	2142	96	3264
31	1054	64	2176	97	3298
32	1088	65	2210	98	3332
33	1122	66	2244	99	3366
				100	3400

35		35		35	
1	35	34	1190	67	2345
2	70	35	1225	68	2380
3	105	36	1260	69	2415
4	140	37	1295	70	2450
5	175	38	1330	71	2485
6	210	39	1365	72	2520
7	245	40	1400	73	2555
8	280	41	1435	74	2590
9	315	42	1470	75	2625
10	350	43	1505	76	2660
11	385	44	1540	77	2695
12	420	45	1575	78	2730
13	455	46	1610	79	2765
14	490	47	1645	80	2800
15	525	48	1680	81	2835
16	560	49	1715	82	2870
17	595	50	1750	83	2905
18	630	51	1785	84	2940
19	665	52	1820	85	2975
20	700	53	1855	85	3010
21	735	54	1890	87	3045
22	770	55	1925	88	3080
23	805	56	1960	89	3115
24	840	57	1995	90	3150
25	875	58	2030	91	3185
26	910	59	2065	92	3220
27	945	60	2100	93	3255
28	980	61	2135	94	3290
29	1015	62	2170	95	3325
30	1050	63	2205	96	3360
31	1085	64	2240	97	3395
32	1120	65	2275	98	3430
33	1155	66	2310	99	3465
				100	3500

36		36		36	
1	36	34	1224	67	2412
2	72	35	1260	68	2448
3	108	36	1296	69	2484
4	144	37	1332	70	2520
5	180	38	1368	71	2556
6	216	39	1404	72	2592
7	252	40	1440	73	2628
8	288	41	1476	74	2664
9	324	42	1512	75	2700
10	360	43	1548	76	2736
11	396	44	1584	77	2772
12	432	45	1620	78	2808
13	468	46	1656	79	2844
14	504	47	1692	80	2880
15	540	48	1728	81	2916
16	576	49	1764	82	2952
17	612	50	1800	83	2988
18	648	51	1836	84	3024
19	684	52	1872	85	3060
20	720	53	1908	86	3096
21	756	54	1944	87	3132
22	792	55	1980	88	3168
23	828	56	2016	89	3204
24	864	57	2052	90	3240
25	900	58	2088	91	3276
26	936	59	2124	92	3312
27	972	60	2160	92	3348
28	1008	61	2196	94	3384
29	1044	62	2232	95	3420
30	1080	63	2268	96	3456
31	1116	64	2304	97	3492
32	1152	65	2340	98	3528
33	1188	66	2376	99	3564
				100	3600

37		37		37	
1	37	34	1258	07	2479
2	74	35	1295	68	2516
3	111	36	1332	69	2553
4	148	37	1369	70	2590
5	185	38	1406	71	2627
6	222	39	1443	72	2664
7	259	40	1480	73	2701
8	295	41	1517	74	2738
9	333	42	1554	75	2775
10	370	43	1591	76	2812
11	407	44	1628	77	2849
12	444	45	1665	78	2886
13	481	46	1702	79	2923
14	518	47	1739	80	2960
15	555	48	1776	81	2997
15	592	49	1813	82	3034
17	629	50	1850	83	3071
18	666	51	1887	84	3108
19	703	52	1924	85	3145
20	740	53	1961	86	3182
21	777	54	1998	87	3219
22	814	55	2035	88	3256
23	851	56	2072	89	3293
24	888	57	2109	90	3330
25	925	58	2145	91	3367
26	952	59	2183	92	3404
27	999	60	2220	93	3441
28	1036	61	2257	94	3478
29	1073	62	2294	95	3515
30	1110	63	2331	96	3552
31	1147	64	2368	97	3589
32	1184	65	2405	98	3626
33	1221	66	2442	99	3663
				100	3700

38		38		38	
1	38	34	1292	67	2546
2	76	35	1330	68	2584
3	114	36	1368	69	2622
4	152	37	1406	70	2660
5	190	38	1444	71	2698
6	228	39	1482	72	2736
7	266	40	1520	73	2774
8	304	41	2558	74	2812
9	342	42	1596	75	2850
10	380	43	1634	76	2888
11	418	44	1672	77	2926
12	456	45	1710	78	2964
13	494	45	1748	79	3002
14	532	47	1786	80	3040
15	570	48	1824	81	3078
16	608	49	1852	82	3116
17	646	50	1900	83	3154
18	684	51	1938	84	3192
19	722	52	1976	85	3230
20	760	53	2014	86	3268
21	798	54	2052	87	3306
22	836	55	2090	88	3344
23	874	55	2128	89	3382
24	912	57	2166	90	3420
25	950	58	2204	91	3458
26	988	59	2242	92	3496
27	1026	60	2280	93	3534
28	1064	61	2318	94	3572
29	1102	62	2356	95	3610
30	1140	63	2394	95	3648
31	1178	64	2432	97	3686
32	1216	65	2470	98	3724
33	1254	66	2508	99	3762
				100	3800

39		39		39	
1	39	34	1326	67	2613
2	78	35	1365	68	2652
3	117	36	1404	69	2691
4	156	37	1443	70	2730
5	195	38	1482	71	2769
6	234	39	1521	72	2808
7	273	40	1560	73	2847
8	312	41	1599	74	2886
9	351	42	1638	75	2925
10	390	43	1677	76	2964
11	429	44	1716	77	3003
12	468	45	1755	78	3042
13	507	46	1794	79	3081
14	546	47	1833	80	3120
15	585	48	1872	81	3159
16	624	49	1911	82	3198
17	663	50	1950	83	3237
18	702	51	1989	84	3276
19	741	52	2028	85	3315
20	780	53	2067	86	3354
21	819	54	2106	87	3393
22	858	55	2145	88	3432
23	897	56	2184	89	3471
24	936	57	2223	90	3510
25	975	58	2262	91	3549
26	1014	59	2301	92	3588
27	1053	60	2340	93	3627
28	1092	61	2379	94	3666
29	1131	62	2418	95	3705
30	1170	63	2457	96	3744
31	1200	64	2496	97	3783
32	1248	65	2535	98	3822
33	1287	66	2574	99	3861
				100	3900

40		40		40	
1	40	34	1360	67	2680
2	80	35	1400	68	2720
3	120	36	1440	69	2760
4	160	37	1480	70	2800
5	200	38	1520	71	2840
6	240	39	1560	72	2880
7	280	40	1600	73	2920
8	320	41	1640	74	2960
9	360	42	1680	75	3000
10	400	43	1720	76	3040
11	440	44	1760	77	3080
12	480	45	1800	78	3120
13	520	46	1840	79	3160
14	560	47	1880	80	3200
15	600	48	1920	81	3240
16	640	49	1960	82	3280
17	680	50	2000	83	3320
18	720	51	2040	84	3360
19	760	52	2080	85	3400
20	800	53	2120	86	3440
21	840	54	2160	87	3480
22	880	55	2200	88	3520
23	920	56	2240	89	3560
24	960	57	2280	90	3600
25	1000	58	2320	91	3640
26	1040	59	2360	92	3680
27	1080	60	2400	93	3720
28	1120	61	2440	94	3760
29	1160	62	2480	95	3800
30	1200	63	2520	96	3840
31	1240	64	2560	97	3880
32	1280	65	2600	98	3920
33	1320	66	2640	99	3960
				100	4000

41		41		41	
1	41	34	1394	67	2747
2	82	35	1435	68	2788
3	123	36	1476	69	2829
4	164	37	1517	70	2870
5	205	38	1558	71	2911
6	246	39	1599	72	2952
7	287	40	1640	73	2993
8	328	41	1681	74	3034
9	369	42	1722	75	3075
10	410	43	1763	76	3116
11	451	44	1804	77	3157
12	492	45	1845	78	3198
13	533	46	1886	79	3239
14	574	47	1927	80	3280
15	615	48	1968	81	3321
16	656	49	2009	82	3362
17	697	50	2050	83	3403
18	738	51	2091	84	3444
19	779	52	2132	85	3485
20	820	53	2173	86	3526
21	861	54	2214	87	3567
22	902	55	2255	88	3608
23	943	56	2296	89	3649
24	984	57	2337	90	3690
25	1025	58	2378	91	3731
26	1066	59	2419	92	3772
27	1107	60	2460	93	3813
28	1148	61	2501	94	3854
29	1189	62	2542	95	3895
30	1230	63	2583	96	3936
31	1271	64	2624	97	3977
32	1312	65	2665	98	4018
33	1353	66	2705	99	4059
				100	4100

42		42		42	
1	42	34	1428	07	2814
2	84	35	1470	68	2856
3	126	36	1512	69	2898
4	168	37	1554	70	2940
5	210	38	1596	71	2982
6	252	39	1638	72	3024
7	294	40	1680	73	3066
8	336	41	1722	74	3108
9	378	42	1764	75	3150
10	420	43	1806	76	3192
11	462	44	1848	77	3234
12	504	45	1890	78	3276
13	546	46	1932	79	3318
14	588	47	1974	80	3360
15	630	48	2016	81	3402
16	672	49	2058	82	3444
17	714	50	2100	83	3486
18	756	51	2142	84	3528
19	798	52	2184	85	3570
20	840	53	2226	86	3612
21	882	54	2268	87	3654
22	924	55	2310	88	3696
23	966	56	2352	89	3738
24	1008	57	2394	90	3780
25	1050	58	2436	91	3822
26	1092	59	2478	92	3864
27	1134	60	2520	93	3906
28	1176	61	2562	94	3948
29	1218	62	2604	95	3990
30	1260	63	2646	96	4032
31	1302	64	2688	97	4074
32	1344	65	2730	98	4116
33	1386	66	2772	99	4158
				100	4200

43		43		43	
1	43	34	1462	67	2881
2	86	35	1505	68	2924
3	129	36	1548	69	2967
4	172	37	1591	70	3010
5	215	38	1634	71	3053
6	258	39	1677	72	3096
7	301	40	1720	73	3139
8	344	41	1763	74	3182
9	387	42	1806	75	3225
10	430	43	1849	76	3268
11	473	44	1892	77	3311
12	516	45	1935	78	3354
13	559	46	1978	79	3397
14	602	47	2021	80	3440
15	645	48	2064	81	3483
16	688	49	2107	82	3526
17	731	50	2150	83	3569
18	774	51	2193	84	3612
19	817	52	2236	85	3655
20	860	53	2279	86	3698
21	903	54	2322	87	3741
22	946	55	2365	88	3784
23	989	56	2408	89	3827
24	1032	57	2451	90	3870
25	1075	58	2494	91	3913
26	1118	59	2537	92	3956
27	1161	60	2580	93	3999
28	1204	61	2623	94	4042
29	1247	62	2666	95	4085
30	1290	63	2709	96	4128
31	1333	64	2752	97	4171
32	1376	65	2795	98	4214
33	1419	66	2838	99	4257
				100	4300

44		44		44	
1	44	34	1496	67	2948
2	88	35	1540	68	2992
3	132	36	1584	69	3036
4	176	37	1628	70	3080
5	220	38	1672	71	3124
6	264	39	1716	72	3168
7	308	40	1760	73	3212
8	352	41	1804	74	3256
9	396	42	1848	75	3300
10	440	43	1892	76	3344
11	484	44	1936	77	3388
12	528	45	1980	78	3432
13	572	46	2024	79	3476
14	616	47	2068	80	3520
15	660	48	2112	81	3564
16	704	49	2156	82	3608
17	748	50	2200	83	3652
18	792	51	2244	84	3696
19	836	52	2288	85	3740
20	880	53	2332	86	3784
21	924	54	2376	87	3828
22	968	55	2420	88	3872
23	1012	56	2464	89	3916
24	1056	57	2508	90	3960
25	1100	58	2552	91	4004
26	1144	59	2596	92	4048
27	1188	60	2640	93	4092
28	1232	61	2684	94	4136
29	1276	62	2728	95	4180
30	1320	63	2772	96	4224
31	1364	64	2816	97	4268
32	1408	65	2860	98	4312
33	1452	66	2904	99	4356
				100	4400

45		45		45	
1	45	34	1530	67	3015
2	90	35	1575	68	3060
3	135	36	1620	69	3105
4	180	37	1665	70	3150
5	225	38	1710	71	3195
6	270	39	1755	72	3240
7	315	40	1800	73	3285
8	360	41	1845	74	3330
9	405	42	1890	75	3375
10	450	43	1935	76	3420
11	495	44	1980	77	3465
12	540	45	2025	78	3510
13	585	46	2070	79	3555
14	630	47	2115	80	3600
15	675	48	2160	81	3645
16	720	49	2205	82	3690
17	765	50	2250	83	3735
18	810	51	2295	84	3780
19	855	52	2340	85	3825
20	900	53	2385	86	3870
21	945	54	2430	87	3915
22	990	55	2475	88	3960
23	1035	56	2520	89	4005
24	1080	57	2565	90	4050
25	1125	58	2610	91	4095
26	1170	59	2655	92	4140
27	1215	60	2700	93	4185
28	1260	61	2745	94	4230
29	1305	62	2790	95	4275
30	1350	63	2835	96	4320
31	1395	64	2880	97	4365
32	1440	65	2925	98	4410
33	1485	66	2970	99	4455
				100	4500

46		46		46	
1	46	34	1564	67	3082
2	92	35	1610	68	3128
3	138	36	1656	69	3174
4	184	37	1702	70	3220
5	230	38	1748	71	3266
6	276	39	1794	72	3312
7	322	40	1840	73	3358
8	368	41	1886	74	3404
9	414	42	1932	75	3450
10	460	43	1978	76	3496
11	506	44	2024	77	3542
12	552	45	2070	78	3588
13	598	46	2116	79	3634
14	644	47	2162	80	3680
15	690	48	2208	81	3726
16	736	49	2254	82	3772
17	782	50	2300	83	3818
18	828	51	2346	84	3864
19	874	52	2392	85	3910
20	920	53	2438	86	3956
21	966	54	2484	87	4002
22	1012	55	2530	88	4048
23	1058	56	2576	89	4094
24	1104	57	2622	90	4140
25	1150	58	2668	91	4186
26	1196	59	2714	92	4232
27	1242	60	2760	93	4278
28	1288	61	2806	94	4324
29	1334	62	2852	95	4370
30	1380	63	2898	96	4416
31	1426	64	2944	97	4462
32	1472	65	2990	98	4508
33	1518	66	3036	99	4554
				100	4600

47		47		47	
1	47	34	1598	67	3149
2	94	35	1645	68	3196
3	141	36	1692	69	3243
4	188	37	1739	70	3290
5	235	38	1786	71	3337
6	282	39	1833	72	3384
7	329	40	1880	73	3431
8	376	41	1927	74	3478
9	423	42	1974	75	3525
10	470	43	2021	76	3572
11	517	44	2068	77	3619
12	564	45	2115	78	3666
13	611	46	2162	79	3713
14	658	47	2209	80	3760
15	705	48	2256	81	3807
16	752	49	2303	82	3854
17	799	50	2350	83	3901
18	846	51	2397	84	3948
19	893	52	2444	85	3995
20	940	53	2491	86	4042
21	987	54	2538	87	4089
22	1034	55	2585	88	4136
23	1081	56	2632	89	4183
24	1128	57	2679	90	4230
25	1175	58	2726	91	4277
26	1222	59	2773	92	4324
27	1269	60	2820	93	4371
28	1316	61	2867	94	4418
29	1363	62	2914	95	4465
30	1410	63	2961	96	4512
31	1457	64	3008	97	4559
32	1504	65	3055	98	4606
33	1551	66	3102	99	4653
				100	4700

48		48		48	
1	48	34	1632	67	3216
2	96	35	1680	68	3264
3	144	36	1728	69	3312
4	192	37	1776	70	3360
5	240	38	1824	71	3408
6	288	39	1872	72	3456
7	336	40	1920	73	3504
8	384	41	1968	74	3552
9	432	42	2016	75	3600
10	480	43	2064	76	3648
11	528	44	2112	77	3696
12	576	45	2160	78	3744
13	624	46	2208	79	3792
14	672	47	2256	80	3840
15	720	48	2304	81	3888
16	768	49	2352	82	3936
17	816	50	2400	83	3984
18	864	51	2448	84	4032
19	912	52	2496	85	4080
20	960	53	2544	86	4128
21	1008	54	2592	87	4176
22	1056	55	2640	88	4224
23	1104	56	2688	89	4272
24	1152	57	2736	90	4320
25	1200	58	2784	91	4368
26	1248	59	2832	92	4416
27	1296	60	2880	93	4464
28	1344	61	2928	94	4512
29	1392	62	2976	95	4560
30	1440	63	3024	96	4608
31	1488	64	3072	97	4656
32	1536	65	3120	98	4704
33	1584	66	3168	99	4752
				100	4800

49		49		49	
1	49	34	1666	67	3283
2	98	35	1715	68	3332
3	147	36	1764	69	3381
4	196	37	1813	70	3430
5	245	38	1862	71	3479
6	294	39	1911	72	3528
7	343	40	1960	73	3577
8	392	41	2009	74	3626
9	441	42	2058	75	3675
10	490	43	2107	76	3724
11	539	44	2156	77	3773
12	588	45	2205	78	3822
13	637	46	2254	79	3871
14	686	47	2303	80	3920
15	735	48	2352	81	3969
16	784	49	2401	82	4018
17	833	50	2450	83	4067
18	882	51	2499	84	4116
19	931	52	2548	85	4165
20	980	53	2597	86	4214
21	1029	54	2646	87	4263
22	1078	55	2695	88	4312
23	1127	56	2744	89	4361
24	1176	57	2793	90	4410
25	1225	58	2842	91	4459
26	1274	59	2891	92	4508
27	1323	60	2940	93	4557
28	1372	61	2989	94	4606
29	1421	62	3038	95	4655
30	1470	63	3087	96	4704
31	1519	64	3136	97	4753
32	1568	65	3185	98	4802
33	1617	66	3234	99	4851
				100	4900

50		50		50	
1	50	34	1700	67	3350
2	100	35	1750	68	3400
3	150	36	1800	69	3450
4	200	37	1850	70	3500
5	250	38	1900	71	3550
6	300	39	1950	72	3600
7	350	40	2000	73	3650
8	400	41	2050	74	3700
9	450	42	2100	75	3750
10	500	43	2150	76	3800
11	550	44	2200	77	3850
12	600	45	2250	78	3900
13	650	46	2300	79	3950
14	700	47	2350	80	4000
15	750	48	2400	81	4050
16	800	49	2450	82	4100
17	850	50	2500	83	4150
18	900	51	2550	84	4200
19	950	52	2600	85	4250
20	1000	53	2650	86	4300
21	1050	54	2700	87	4350
22	1100	55	2750	88	4400
23	1150	56	2800	89	4450
24	1200	57	2850	90	4500
25	1250	58	2900	91	4550
26	1300	59	2950	92	4600
27	1350	60	3000	93	4650
28	1400	61	3050	94	4700
29	1450	62	3100	95	4750
30	1500	63	3150	96	4800
31	1550	64	3200	97	4850
32	1600	65	3250	98	4900
33	1650	66	3300	99	4950
				100	5000

51		51		51	
1	51	34	1734	67	3417
2	102	35	1785	68	3468
3	153	36	1836	69	3519
4	204	37	1887	70	3570
5	255	38	1938	71	3621
6	306	39	1989	72	3672
7	357	40	2040	73	3723
8	408	41	2091	74	3774
9	459	42	2142	75	3825
10	510	43	2193	76	3876
11	561	44	2244	77	3927
12	612	45	2295	78	3978
13	663	46	2346	79	4029
14	714	47	2397	80	4080
15	765	48	2448	81	4131
16	816	49	2499	82	4182
17	867	50	2550	83	4233
18	918	51	2601	84	4284
19	969	52	2652	85	4335
20	1020	53	2703	86	4386
21	1071	54	2754	87	4437
22	1122	55	2805	88	1488
23	1173	56	2856	89	4539
24	1224	57	2907	90	4590
25	1275	58	2958	91	4641
26	1326	59	3009	92	4692
27	1377	60	3060	93	4743
28	1428	61	3111	94	4794
29	1479	62	3162	95	4845
30	1530	63	3213	96	4896
31	1581	64	3264	97	4947
32	1632	65	3315	98	4998
33	1683	66	3366	99	5049
				100	5100

52		52		52	
1	52	34	1768	67	3484
2	104	35	1820	68	3536
3	156	36	1872	69	3588
4	208	37	1924	70	3640
5	260	38	1976	71	3692
6	312	39	2028	72	3744
7	364	40	2080	73	3796
8	416	41	2132	74	3848
9	468	42	2184	75	3900
10	520	43	2236	76	3952
11	572	44	2288	77	4004
12	624	45	2340	78	4056
13	676	46	2392	79	4108
14	728	47	2444	80	4160
15	780	48	2496	81	4212
16	832	49	2548	82	4264
17	884	50	2600	83	4316
18	936	51	2652	84	4368
19	988	52	2704	85	4420
20	1040	53	2756	86	4472
21	1092	54	2808	87	4524
22	1144	55	2860	88	4576
23	1196	56	2912	89	4628
24	1248	57	2964	90	4680
25	1300	58	3016	91	4732
26	1352	59	3068	92	4784
27	1404	60	3120	93	4836
28	1456	61	3172	94	4888
29	1508	62	3224	95	4940
30	1560	63	3276	96	4992
31	1612	64	3328	97	5044
32	1664	65	3380	98	5096
33	1716	66	3432	99	5148
				100	5200

53		53		53	
1	53	34	1802	67	3551
2	106	35	1855	68	3604
3	159	36	1908	69	3657
4	212	37	1961	70	3710
5	265	38	2014	71	3763
6	318	39	2067	72	1816
7	371	40	2120	73	1869
8	424	41	2173	74	1922
9	477	42	2226	75	3975
10	530	43	2279	76	4028
11	583	44	2332	77	4081
12	636	45	2385	78	4134
13	689	46	2438	79	4187
14	742	47	2491	80	4240
15	795	48	2544	81	4293
16	848	49	2597	82	4346
17	901	50	2650	83	4399
18	954	51	2703	84	4452
19	1007	52	2756	85	4505
20	1060	53	2809	86	4558
21	1113	54	2862	87	4611
22	1166	55	2915	88	4664
23	1219	56	2968	89	4717
24	1272	57	3021	90	4770
25	1325	58	3074	91	4823
26	1378	59	3127	92	4876
27	1431	60	3180	93	4929
28	1484	61	3233	94	4982
29	1537	62	3286	95	5035
30	1590	63	3339	96	5088
31	1643	64	3392	97	5144
32	1696	65	3445	98	5194
33	1749	66	3498	99	5247
				100	5300

54		54		54	
1	54	34	1836	67	3618
2	108	35	1890	68	3672
3	162	36	1944	69	3726
4	216	37	1998	70	3780
5	270	38	2052	71	3834
6	324	39	2106	72	3888
7	378	40	2160	73	3942
8	432	41	2214	74	3996
9	486	42	2268	75	4050
10	540	43	2322	76	4104
11	594	44	2376	77	4158
12	648	45	2430	78	4212
13	702	46	2484	79	4266
14	756	47	2538	80	4320
15	810	48	2592	81	4374
16	864	49	2646	82	4428
17	918	50	2700	83	4482
18	972	51	2754	84	4536
19	1026	52	2808	85	4590
20	1080	53	2862	86	4644
21	1134	54	2916	87	4698
22	1188	55	2970	88	4752
23	1242	56	3024	89	4806
24	1296	57	3078	90	4860
25	1350	58	3132	91	4914
26	1404	59	3186	92	4968
27	1458	60	3240	93	5022
28	1512	61	3294	94	5076
29	1566	62	3348	95	5130
30	1620	63	3402	96	5184
31	1674	64	3456	97	5238
32	1728	65	3510	98	5292
33	1782	66	3564	99	5346
				100	5400

55		55		55	
1	55	34	1870	67	3685
2	110	35	1925	68	3740
3	165	36	1980	69	3795
4	220	37	2035	70	3850
5	275	38	2090	71	3905
6	330	39	2145	72	3960
7	385	40	2200	73	4015
8	440	41	2255	74	4070
9	495	42	2310	75	4125
10	550	43	2365	76	4180
11	605	44	2420	77	4235
12	660	45	2475	78	4290
13	715	46	2530	79	4345
14	770	47	2585	80	4400
15	825	48	2640	81	4455
16	880	49	2695	82	4510
17	935	50	2750	83	4565
18	990	51	2805	84	4620
19	1045	52	2860	85	4675
20	1100	53	2915	86	4730
21	1155	54	2970	87	4785
22	1210	55	3025	88	4840
23	1265	56	3080	89	4895
24	1320	57	3135	90	4950
25	1375	58	3190	91	5005
26	1430	59	3245	92	5060
27	1485	60	3300	93	5115
28	1540	61	3355	94	5170
29	1595	62	3410	95	5225
30	1650	63	3465	96	5280
31	1705	64	3520	97	5335
32	1760	65	3575	98	5390
33	1815	66	3630	99	5445
				100	5500

56		56		56	
1	56	34	1904	67	3752
2	112	35	1960	68	3808
3	168	36	2016	69	3864
4	224	37	2072	70	3920
5	280	38	2128	71	3976
6	336	39	2184	72	4032
7	392	40	2240	73	4088
8	448	41	2296	74	4144
9	504	42	2352	75	4200
10	560	43	2408	76	4256
11	616	44	2464	77	4312
12	672	45	2520	78	4368
13	728	46	2576	79	4424
14	784	47	2632	80	4480
15	840	48	2688	81	4536
16	896	49	2744	82	4592
17	952	50	2800	83	4648
18	1008	51	2856	84	4704
19	1064	52	2912	85	4760
20	1120	53	2968	86	4816
21	1176	54	3024	87	4872
22	1232	55	3080	88	4928
23	1288	56	3136	89	4984
24	1344	57	3192	90	5040
25	1400	58	3248	91	5096
26	1456	59	3304	92	5152
27	1512	60	3360	93	5208
28	1568	61	3416	94	5264
29	1624	62	3472	95	5320
30	1680	63	3528	96	5376
31	1736	64	3584	97	5432
32	1792	65	3640	98	5488
33	1848	66	3696	99	5544
				100	5600

57		57		57	
1	57	34	1938	67	3819
2	114	35	1995	68	3876
3	171	36	2052	69	3933
4	228	37	2109	70	3990
5	285	38	2166	71	4047
6	342	39	2223	72	4104
7	399	40	2280	73	4161
8	456	41	2337	74	4218
9	513	42	2394	75	4275
10	570	43	2451	76	4332
11	627	44	2508	77	4389
12	684	45	2565	78	4446
13	741	46	2622	79	4503
14	798	47	2679	80	4560
15	855	48	2736	81	4617
16	912	49	2793	82	4674
17	969	50	2850	83	4731
18	1026	51	2907	84	4788
19	1083	52	2964	85	4845
20	1140	53	3021	86	4902
21	1197	54	3078	87	4959
22	1254	55	3135	88	5016
23	1311	56	3192	89	5073
24	1368	57	3249	90	5130
25	1425	58	3306	91	5187
26	1482	59	3363	92	5244
27	1539	60	3420	93	5301
28	1596	61	3477	94	5358
29	1653	62	3534	95	5415
30	1710	63	3591	96	5472
31	1767	64	3648	97	5529
32	1824	65	3705	98	5586
33	1881	66	3762	99	5643
				100	5700

58		58		58	
1	58	34	1972	67	3886
2	116	35	2030	68	3944
3	174	36	2088	69	4002
4	232	37	2146	70	4060
5	290	38	2204	71	4118
6	348	39	2262	72	4176
7	406	40	2320	73	4234
8	464	41	2378	74	4292
9	522	42	2436	75	4350
10	580	43	2494	76	4408
11	638	44	2552	77	4466
12	696	45	2610	78	4524
13	754	46	2668	79	4582
14	812	47	2726	80	4640
15	870	48	2784	81	4698
16	928	49	2842	82	4756
17	986	50	2900	83	4814
18	1044	51	2958	84	4872
19	1102	52	3016	85	4930
20	1160	53	3074	86	4988
21	1218	54	3132	87	5046
22	1276	55	3190	88	5104
23	1334	56	3248	89	5162
24	1392	57	3306	90	5220
25	1450	58	3364	91	5278
26	1508	59	3422	92	5336
27	1566	60	3480	93	5394
28	1624	61	3538	94	5452
29	1682	62	3596	95	5510
30	1740	63	3654	96	5568
31	1798	64	3712	97	5626
32	1856	65	3770	98	5684
33	1914	66	3828	99	5742
				100	5800

59		59		59	
1	59	34	2006	67	3953
2	118	35	2065	68	4012
3	177	36	2124	69	4071
4	236	37	2183	70	4130
5	295	38	2242	71	4189
6	354	39	2301	72	4248
7	413	40	2360	73	4307
8	472	41	2419	74	4366
9	531	42	2478	75	4425
10	590	43	2537	76	4484
11	649	44	2596	77	4543
12	708	45	2655	78	4602
13	767	46	2714	79	4661
14	826	47	2773	80	4720
15	885	48	2832	81	4779
16	944	49	2891	82	4838
17	1003	50	2950	83	4897
18	1062	51	3009	84	4956
19	1121	52	3068	85	5015
20	1180	53	3127	86	5074
21	1239	54	3186	87	5133
22	1298	55	3245	88	5192
23	1357	56	3304	89	5251
24	1416	57	3363	90	5310
25	1475	58	3422	91	5369
26	1534	59	3481	92	5428
27	1593	60	3540	93	5487
28	1652	61	3599	94	5546
29	1711	62	3658	95	5605
30	1770	63	3717	96	5664
31	1829	64	3776	97	5723
32	1888	65	3835	98	5782
33	1947	66	3894	99	5841
				100	5900

60		60		60	
1	60	34	2040	67	4020
2	120	35	2100	68	4080
3	180	36	2160	69	4140
4	240	37	2220	70	4200
5	300	38	2280	71	4260
6	360	39	2340	72	4320
7	420	40	2400	73	4380
8	480	41	2460	74	4440
9	540	42	2520	75	4500
10	600	43	2580	76	4560
11	660	44	2640	77	4620
12	720	45	2700	78	4680
13	780	46	2760	79	4740
14	840	47	2820	80	4800
15	900	48	2880	81	4860
16	960	49	2940	82	4920
17	1020	50	3000	83	4980
18	1080	51	3060	84	5040
19	1140	52	3120	85	5100
20	1200	53	3180	86	5160
21	1260	54	3240	87	5220
22	1320	55	3300	88	5280
23	1380	56	3360	89	5340
24	1440	57	3420	90	5400
25	1500	58	3480	91	5460
26	1560	59	3540	92	5520
27	1620	60	3600	93	5580
28	1680	61	3660	94	5640
29	1740	62	3720	95	5700
30	1800	63	3780	96	5760
31	1860	64	3840	97	5820
32	1920	65	3900	98	5880
33	1980	66	3960	99	5940
				100	6000

61		61		61	
1	61	34	2074	67	4087
2	122	35	2135	68	4148
3	183	36	2196	69	4209
4	244	37	2257	70	4270
5	305	38	2318	71	4331
6	366	39	2379	72	4392
7	427	40	2440	73	4453
8	488	41	2501	74	4514
9	549	42	2562	75	4575
10	610	43	2623	76	4636
11	671	44	2684	77	4697
12	732	45	2745	78	4758
13	793	46	2806	79	4819
14	854	47	2867	80	4880
15	915	48	2928	81	4941
16	976	49	2989	82	5002
17	1037	50	3050	83	5063
18	1098	51	3111	84	5124
19	1159	52	3172	85	5185
20	1220	53	3233	86	5246
21	1281	54	3294	87	5307
22	1342	55	3355	88	5368
23	1403	56	3416	89	5429
24	1464	57	3477	90	5490
25	1525	58	3538	91	5551
26	1586	59	3599	92	5612
27	1647	60	3660	93	5673
28	1708	61	3721	94	5734
29	1769	62	3782	95	5795
30	1830	63	3843	96	5856
31	1891	64	3904	97	5917
32	1952	65	3965	98	5978
33	2013	66	4026	99	6039
				100	6100

62		62		62	
1	62	34	2108	67	4154
2	124	35	2170	68	4216
3	186	36	2232	69	4278
4	248	37	2294	70	4340
5	310	38	2356	71	4402
6	372	39	2418	72	4464
7	434	40	2480	73	4526
8	496	41	2542	74	4588
9	558	42	2604	75	4650
10	620	43	2666	76	4712
11	682	44	2728	77	4774
12	744	45	2790	78	4836
13	806	46	2852	79	4898
14	868	47	2914	80	4960
15	930	48	2976	81	5022
16	992	49	3038	82	5084
17	1054	50	3100	83	5146
18	1116	51	3162	84	5208
19	1178	52	3224	85	5270
20	1240	53	3286	86	5332
21	1302	54	3348	87	5394
22	1364	55	3410	88	5456
23	1426	56	3472	89	5518
24	1488	57	3534	90	5580
25	1550	58	3596	91	5642
26	1612	59	3658	92	5704
27	1674	60	3720	93	5766
28	1736	61	3782	94	5828
29	1798	62	3844	95	5890
30	1860	63	3906	96	5952
31	1922	64	3968	97	6014
32	1984	65	4030	98	6076
33	2046	66	4092	99	6138
				100	6200

63		63		63	
1	63	34	2142	67	4221
2	126	35	2205	68	4284
3	189	36	2268	69	4347
4	252	37	2331	70	4410
5	315	38	2394	71	4473
6	378	39	2457	72	4536
7	441	40	2520	73	4599
8	504	41	2583	74	4662
9	567	42	2646	75	4725
10	630	43	2709	76	4788
11	693	44	2772	77	4851
12	756	45	2835	78	4914
13	819	46	2898	79	4977
14	882	47	2961	80	5040
15	945	48	3024	81	5103
16	1008	49	3087	82	5166
17	1071	50	3150	83	5229
18	1134	51	3213	84	5292
19	1197	52	3276	85	5355
20	1260	53	3339	86	5418
21	1323	54	3402	87	5481
22	1386	55	3465	88	5544
23	1449	56	3528	89	5607
24	1512	57	3591	90	5670
25	1575	58	3654	91	5733
26	1638	59	3717	92	5796
27	1701	60	3780	93	5859
28	1764	61	3843	94	5922
29	1827	62	3906	95	5985
30	1890	63	3969	96	6048
31	1953	64	4032	97	6111
32	2016	65	4095	98	6174
33	2079	66	4158	99	6237
				100	6300

64		64		64	
1	64	34	2176	67	4288
2	128	35	2240	68	4352
3	192	36	2304	69	4416
4	256	37	2368	70	4480
5	320	38	2432	71	4544
6	384	39	2496	72	4508
7	448	40	2560	73	4672
8	512	41	2624	74	4736
9	576	42	2688	75	4800
10	640	43	2752	76	4864
11	704	44	2816	77	4928
12	768	45	2880	78	4992
13	832	46	2944	79	5056
14	896	47	3008	80	5120
15	960	48	3072	81	4184
16	1024	49	3136	82	5248
17	1088	50	3200	83	5312
18	1152	51	3264	84	5376
19	1216	52	3328	85	5440
20	1280	53	3392	86	5504
21	1344	54	3456	87	5568
22	1408	55	3520	88	5632
23	1472	56	3584	89	5696
24	1536	57	3648	90	5760
25	1600	58	3712	91	5824
26	1664	59	3776	92	5888
27	1728	60	3840	93	5952
28	1792	61	3904	94	6016
29	1856	62	3968	95	6080
30	1920	63	4032	96	6144
31	1984	64	4096	97	6208
32	2048	65	4160	98	6272
33	2112	66	4224	99	6336
				100	6400

65		65		65	
1	65	34	2210	67	4355
2	130	35	2275	68	4420
3	195	36	2340	69	4485
4	260	37	2405	70	4550
5	325	38	2470	71	4615
6	390	39	2535	72	4680
7	455	40	2600	73	4745
8	520	41	2665	74	4810
9	585	42	2730	75	4875
10	650	43	2795	76	4940
11	715	44	2860	77	5005
12	780	45	2925	78	5070
13	845	46	2990	79	5135
14	910	47	3055	80	5200
15	975	48	3120	81	5265
16	1040	49	3185	82	5330
17	1105	50	3250	83	5395
18	1170	51	3315	84	5460
19	1235	52	3380	85	5525
20	1300	53	3445	86	5590
21	1365	54	3510	87	5655
22	1430	55	3575	88	5720
23	1495	56	3640	89	5785
24	1560	57	3705	90	5850
25	1625	58	3770	91	5915
26	1690	59	3835	92	5980
27	1755	60	3900	93	6045
28	1820	61	3965	94	6110
29	1885	62	4030	95	6175
30	1950	63	4095	96	6240
31	2015	64	4160	97	6305
32	2080	65	4225	98	6370
33	2145	66	4290	99	6435
				100	6500

66		66		66	
1	66	34	2244	67	4422
2	132	35	2310	68	4488
3	198	36.	2376	69	4554
4	264	37	2442	70	4620
5	330	38	2508	71	4686
6	396	39	2574	72	4752
7	462	40	2640	73	4818
8	528	41	2706	74	4884
9	594	42	2772	75	4950
10	660	43	2838	76	5016
11	726	44	2904	77	5082
12	792	45	2970	78	5148
13	858	46	3036	79	5214
14	924	47	3102	80	5280
15	990	48	3168	81	5346
16	1056	49	3234	82	5412
17	1122	50	3300	83	5478
18	1188	51	3366	84	5544
19	1254	52	3432	85	5610
20	1320	53	3498	86	5676
21	1386	54	3564	87	5742
22	1452	55	3630	88	5808
23	1518	56	3696	89	5874
24	1584	57	3762	90	5940
25	1650	58	3828	91	6006
26	1716	59	3894	92	6072
27	1782	60	3960	93	6138
28	1848	61	4026	94	6204
29	1914	62	4092	95	6270
30	1980	63	4158	96	6336
31	2046	64	4224	97	6402
32	2112	65	4290	98	6468
33	2178	66	4356	99	6534
				100	6600

67		67		67	
1	67	34	2278	67	4489
2	134	35	2345	68	4556
3	201	36	2412	69	4623
4	268	37	2479	70	4690
5	335	38	2546	71	4757
6	402	39	2613	72	4824
7	469	40	2680	73	4891
8	536	41	2747	74	4958
9	603	42	2814	75	5025
10	670	43	2881	76	5092
11	737	44	2948	77	5159
12	804	45	3015	78	5226
13	871	46	3082	79	5293
14	938	47	3149	80	5360
15	1005	48	3216	81	5427
16	1072	49	3283	82	5494
17	1139	50	3350	83	5561
18	1206	51	3417	84	5628
19	1273	52	3484	85	5695
20	1340	53	3551	86	5762
21	1407	54	3618	87	5829
22	1474	55	3685	88	5896
23	1541	56	3752	89	5963
24	1608	57	3819	90	6030
25	1675	58	3886	91	6097
26	1742	59	3953	92	6164
27	1809	60	4020	93	6231
28	1876	61	4087	94	6298
29	1943	62	4154	95	6365
30	2010	63	4221	96	6432
31	2077	64	4288	97	6499
32	2144	65	4355	98	6566
33	2211	66	4422	99	6633
				100	6700

68		8		68	
1	68	34	2312	67	4556
2	136	35	2380	68	4624
3	204	36	2448	69	4692
4	272	37	2516	70	4760
5	340	38	2584	71	4828
6	408	39	2652	72	4896
7	476	40	2720	73	4964
8	544	41	2788	74	5032
9	612	42	2856	75	5100
10	680	43	2924	76	5168
11	748	44	2992	77	5236
12	816	45	3060	78	5304
13	884	46	3128	79	5372
14	952	47	3196	80	5440
15	1020	48	3264	81	5508
16	1088	49	3332	82	5576
17	1156	50	3400	83	5644
18	1224	51	3468	84	5712
19	1292	52	3536	85	5780
20	1360	53	3604	86	5848
21	1428	54	3672	87	5916
22	1496	55	3740	88	5984
23	1564	56	3808	89	6052
24	1632	57	3876	90	6120
25	1700	58	3944	91	6188
26	1768	59	4012	92	6256
27	1836	60	4080	93	6324
28	1904	61	4148	94	6392
29	1972	62	4216	95	6460
30	2040	63	4284	96	6528
31	2108	64	4352	97	6596
32	2176	65	4420	98	6664
33	2244	66	4488	99	6732
				100	6800

69		69		69	
1	69	34	2346	67	4623
2	138	35	2415	68	4692
3	207	36	2484	69	4761
4	276	37	2553	70	4830
5	345	38	2622	71	4899
6	414	39	2691	72	4968
7	483	40	2760	73	5037
8	552	41	2829	74	5106
9	621	42	2898	75	5175
10	690	43	2967	76	5244
11	759	44	3036	77	5313
12	828	45	3105	78	5382
13	897	46	3174	79	5451
14	966	47	3243	80	5520
15	1035	48	3312	81	5589
16	1104	49	3381	82	5658
17	1173	50	3450	83	5727
18	1242	51	3519	84	5796
19	1311	52	3588	85	5865
20	1380	53	3657	86	5934
21	1449	54	3726	87	6003
22	1518	55	3795	88	6072
23	1587	56	3864	89	6141
24	1656	57	3933	90	6210
25	1725	58	4002	91	6279
26	1794	59	4071	92	6348
27	1863	60	4140	93	6417
28	1932	61	4209	94	6486
29	2001	62	4278	95	6555
30	2070	63	4347	96	6624
31	2139	64	4416	97	6693
32	2208	65	4485	98	6762
33	2277	66	4554	99	6831
				100	6900

70		70		70	
1	70	34	2380	67	4690
2	140	35	2450	68	4760
3	210	36	2520	69	4830
4	280	37	2590	70	4900
5	350	38	2660	71	4970
6	420	39	2730	72	5040
7	490	40	2800	73	5110
8	560	41	2870	74	5180
9	630	42	2940	75	5250
10	700	43	3010	76	5320
11	770	44	3080	77	5390
12	840	45	3150	78	5460
13	910	46	3220	79	5530
14	980	47	3290	80	5600
15	1050	48	3360	81	5670
16	1120	49	3430	82	5740
17	1190	50	3500	83	5810
18	1260	51	3570	84	5880
19	1330	52	3640	85	5950
20	1400	53	3710	86	6020
21	1470	54	3780	87	6090
22	1540	55	3850	88	6160
23	1610	56	3920	89	6230
24	1680	57	3990	90	6300
25	1750	58	4060	91	6370
26	1820	59	4130	92	6440
27	1890	60	4200	93	6510
28	1960	61	4270	94	6580
29	2030	62	4340	95	6650
30	2100	63	4410	96	6720
31	2170	64	4480	97	6790
32	2240	65	4550	98	6860
33	2310	66	4620	99	6930
				100	7000

71		71		71	
1	71	34	2414	67	4757
2	142	35	2485	68	4828
3	213	36	2556	69	4899
4	284	37	2627	70	4970
5	355	38	2698	71	5041
6	426	39	2769	72	5112
7	497	40	2840	73	5183
8	568	41	2911	74	5254
9	639	42	2982	75	5325
10	710	43	3053	76	5396
11	781	44	3124	77	5467
12	852	45	3195	78	5538
13	923	46	3266	79	5609
14	994	47	3337	80	5680
15	1065	48	3408	81	5751
16	1136	49	3479	82	5822
17	1207	50	3550	83	5893
18	1278	51	3621	84	5964
19	1349	52	3692	85	6035
20	1420	53	3763	86	6106
21	1491	54	3834	87	6177
22	1562	55	3905	88	6248
23	1633	56	3976	89	6319
24	1704	57	3047	90	6390
25	1775	58	4118	91	6461
26	1846	59	4189	92	6532
27	1917	60	4260	93	6603
28	1988	61	4331	94	6674
29	2059	62	4402	95	6745
30	2130	63	4473	96	6816
31	2201	64	4544	97	6887
32	2272	65	4615	98	6958
33	2343	66	4686	99	7029
				100	7100

72		72		72	
1	72	34	2448	67	4824
2	144	35	2520	68	4896
3	216	36	2592	69	4968
4	288	37	2664	70	5040
5	360	38	2736	71	5112
6	432	39	2808	72	5184
7	504	40	2880	73	5256
8	576	41	2952	74	5328
9	648	42	3024	75	5400
10	720	43	3096	76	5472
11	792	44	3168	77	5544
12	864	45	3240	78	5616
13	936	46	3312	79	5688
14	1008	47	3384	80	5760
15	1080	48	3456	81	5832
16	1152	49	3528	82	5904
17	1224	50	3600	83	5976
18	1296	51	3672	84	6048
19	1368	52	3744	85	6120
20	1440	53	3816	86	6192
21	1512	54	3888	87	6264
22	1584	55	3960	88	6336
23	1656	56	4032	89	6408
24	1728	57	4104	90	6480
25	1800	58	4176	91	6552
26	1872	59	4248	92	6624
27	1944	60	4320	93	6696
28	2016	61	4392	94	6768
29	2088	62	4464	95	6840
30	2160	63	4536	96	6912
31	2232	64	4608	97	6984
32	2304	65	4680	98	7055
33	2376	66	4752	99	7128
				100	7200

73		73		73	
1	73	34	2482	67	4891
2	146	35	2555	68	4964
3	219	36	2628	69	5037
4	292	37	2701	70	5110
5	365	38	2774	71	5183
6	438	39	2847	72	5256
7	511	40	2920	73	5329
8	584	41	2993	74	5402
9	657	42	3066	75	5475
10	730	43	3139	76	5548
11	803	44	3212	77	5621
12	876	45	3285	78	5694
13	949	46	3358	79	5767
14	1022	47	3431	80	5840
15	1095	48	3504	81	5913
16	1168	49	3577	82	5986
17	1241	50	3650	83	6059
18	1314	51	3723	84	6132
19	1387	52	3796	85	6205
20	1460	53	3869	86	6278
21	1533	54	3942	87	6351
22	1606	55	4015	88	6424
23	1679	56	4088	89	6497
24	1752	57	4161	90	6570
25	1825	58	4234	91	6643
26	1898	59	4307	92	6716
27	1971	60	4380	93	6789
28	2044	61	4453	94	6862
29	2117	62	4526	95	6935
30	2190	63	4599	96	7008
31	2263	64	4672	97	7081
32	2336	65	4745	98	7154
33	2409	66	4818	99	7227
				100	7300

74		74		74	
1	74	34	2516	67	4958
2	148	35	2590	68	5032
3	222	36	2664	69	5106
4	296	37	2738	70	5180
5	370	38	2812	71	5254
6	444	39	2886	72	5328
7	518	40	2960	73	5402
8	592	41	3034	74	5476
9	666	42	3108	75	5550
10	740	43	3182	76	5624
11	814	44	3256	77	5698
12	888	45	3330	78	5772
13	962	46	3404	79	5846
14	1036	47	3478	80	5920
15	1110	48	3552	81	5994
16	1184	49	3626	82	6068
17	1258	50	3700	83	6142
18	1332	51	3774	84	6216
19	1406	52	3848	85	6290
20	1480	53	3922	86	6364
21	1554	54	3996	87	6438
22	1628	55	4070	88	6512
23	1702	56	4144	89	6586
24	1776	57	4218	90	6660
25	1850	58	4292	91	6734
26	1924	59	4366	92	6808
27	1998	60	4440	93	6882
28	2072	61	4514	94	6956
29	2146	62	4588	95	7030
30	2220	63	4662	96	7104
31	2294	64	4736	97	7178
32	2368	65	4810	98	7252
33	2442	66	4884	99	7326
				100	7400

75		75		75	
1	75	34	2550	67	5025
2	150	35	2625	68	5100
3	225	36	2700	69	5175
4	300	37	2775	70	5250
5	375	38	2850	71	5325
6	450	39	2925	72	5400
7	525	40	3000	73	5475
8	600	41	3075	74	5550
9	675	42	3150	75	5625
10	750	43	3225	76	5700
11	825	44	3300	77	5775
12	900	45	3375	78	5850
13	975	46	3450	79	5925
14	1050	47	3525	80	6000
15	1125	48	3600	81	6075
16	1200	49	3675	82	6150
17	1275	50	3750	83	6225
18	1350	51	3825	84	6300
19	1425	52	3900	85	6375
20	1500	53	3975	86	6450
21	1575	54	4050	87	6525
22	1650	55	4125	88	6600
23	1725	56	4200	89	6675
24	1800	57	4275	90	6750
25	1875	58	4350	91	6825
26	1950	59	4425	92	6900
27	2025	60	4500	93	6975
28	2100	61	4575	94	7050
29	2175	62	4650	95	7125
30	2250	63	4725	96	7200
31	2325	64	4800	97	7275
32	2400	65	4875	98	7350
33	2475	66	4950	99	7425
				100	7500

5025
5100
5175
5250
5325
5400
5475
5550
5625
5700
5775
5850
5925
6000
6075
6150
6225
6300
6375
6450
6525
6600
6675
6750
6825
6900
6975
7050
7125
7200
7275
7350
7425
7500

76		76		76	
1	76	34	2584	67	5092
2	152	35	2660	68	5168
3	228	36	2736	69	5244
4	304	37	2812	70	5320
5	380	38	2888	71	5396
6	456	39	2964	72	5472
7	532	40	3040	73	5548
8	608	41	3116	74	5624
9	684	42	3192	75	5700
10	760	43	3268	76	5776
11	836	44	3344	77	5852
12	912	45	3420	78	5928
13	988	46	3496	79	6004
14	1064	47	3572	80	6080
15	1140	48	3648	81	6156
16	1216	49	3724	82	6232
17	1292	50	3800	83	6308
18	1368	51	3876	84	6384
19	1444	52	3952	85	6460
20	1520	53	4028	86	6536
21	1596	54	4104	87	6612
22	1672	55	4180	88	6688
23	1748	56	4256	89	6764
24	1824	57	4332	90	6840
25	1900	58	4408	91	6916
26	1976	59	4484	92	6992
27	2052	60	4560	93	7068
28	2128	61	4636	94	7144
29	2204	62	4712	95	7220
30	2280	63	4788	96	7296
31	2356	64	4864	97	7372
32	2432	65	4940	98	7448
33	2508	66	5016	99	7524
				100	7600

77		77		77	
1	77	34	2618	67	5159
2	154	35	2695	68	5236
3	231	36	2772	69	5313
4	308	37	2849	70	5390
5	385	38	2926	71	5467
6	462	39	3003	72	5544
7	539	40	3080	73	5621
8	616	41	3157	74	5698
9	693	42	3234	75	5775
10	770	43	3311	76	5852
11	847	44	3388	77	5929
12	924	45	3465	78	6006
13	1001	46	3542	79	6083
14	1078	47	3619	80	6160
15	1155	48	3696	81	6237
16	1232	49	3773	82	6314
17	1309	50	3850	83	6391
18	1386	51	3927	84	6468
19	1463	52	4004	85	6545
20	1540	53	4081	86	6622
21	1617	54	4158	87	6699
22	1694	55	4235	88	6776
23	1771	56	4312	89	6853
24	1848	57	4389	90	6930
25	1925	58	4465	91	7007
26	2002	59	4543	92	7084
27	2079	60	4620	93	7161
28	2156	61	4697	94	7238
29	2233	62	4774	95	7315
30	2310	63	4851	96	7392
31	2387	64	4928	97	7469
32	2464	65	5005	98	7546
33	2541	66	5082	99	7623
				100	7700

78		78		78	
1	78	34	2652	67	5226
2	156	35	2730	68	5304
3	234	36	2808	69	5382
4	312	37	2886	70	5460
5	390	38	2964	71	5538
6	468	39	3042	72	5616
7	546	40	3120	73	5694
8	624	41	3198	74	5772
9	702	42	3276	75	5850
10	780	43	3354	76	5928
11	858	44	3432	77	6006
12	936	45	3510	78	6084
13	1014	46	3588	79	6162
14	1092	47	3666	80	6240
15	1170	48	3744	81	6318
16	1248	49	3822	82	6396
17	1326	50	3900	83	6474
18	1404	51	3978	84	6552
19	1482	52	4056	85	6630
20	1560	53	4134	86	6708
21	1638	54	4212	87	6786
22	1716	55	4290	88	6864
23	1794	56	4368	89	6942
24	1872	57	4446	90	7020
25	1950	58	4524	91	7098
26	2028	59	4602	92	7176
27	2106	60	4680	93	7254
28	2184	61	4758	94	7332
29	2262	62	4836	95	7410
30	2340	63	4914	96	7488
31	2418	64	4992	97	7566
32	2496	65	5070	98	7644
33	2574	66	5148	99	7722
				100	7800

79		79		79	
1	79	34	2686	67	5293
2	158	35	2765	68	5372
3	237	36	2844	69	5451
4	316	37	2923	70	5530
5	395	38	3002	71	5609
6	474	39	3081	72	5688
7	553	40	3160	73	5767
8	632	41	3239	74	5846
9	711	42	3318	75	5925
10	790	43	3397	76	6004
11	869	44	3476	77	6083
12	948	45	3555	78	6162
13	1027	46	3634	79	6241
14	1106	47	3713	80	6320
15	1185	48	3792	81	6399
16	1264	49	3871	82	6478
17	1343	50	3950	83	6557
18	1422	51	4029	84	6636
19	1501	52	4108	85	6715
20	1580	53	4187	86	6794
21	1659	54	4265	87	6873
22	1738	55	4345	88	6952
23	1817	56	4424	89	7031
24	1896	57	4503	90	7110
25	1975	58	4582	91	7189
26	2054	59	4661	92	7268
27	2133	60	4740	93	7347
28	2212	61	4819	94	7426
29	2291	62	4898	95	7505
30	2370	63	4977	96	7584
31	2449	64	5056	97	7663
32	2528	65	5135	98	7742
33	2607	66	5214	99	7821
				100	7900

80		80		80	
1	80	34	2720	67	5360
2	160	35	2800	68	5440
3	240	36	2880	69	5520
4	320	37	2960	70	5600
5	400	38	3040	71	5680
6	480	39	3129	72	5760
7	560	40	3200	73	5840
8	640	41	3280	74	5920
9	720	42	3360	75	6000
10	800	43	3440	76	6080
11	880	44	3520	77	6160
12	960	45	3600	78	6240
13	1040	46	3680	79	6320
14	1120	47	3760	80	6400
15	1200	48	3840	81	6480
16	1280	49	3920	82	6560
17	1360	50	4000	83	6640
18	1440	51	4080	84	6720
19	1520	52	4160	85	6800
20	1600	53	4240	86	6880
21	1680	54	4320	87	6960
22	1760	55	4400	88	7040
23	1840	56	4480	89	7120
24	1920	57	4560	90	7200
25	2000	58	4640	91	7280
26	2080	59	4720	92	7360
27	2160	60	4800	93	7440
28	2240	61	4880.	94	7520
29	2320	62	4960	95	7600
30	2400	63	5040	96	7680
31	2480	64	5120	97	7760
32	2560	65	5200	98	7840
33	2640	66	5280	99	7920
				100	8000

81		81		81	
1	81	34	2754	67	5427
2	162	35	2835	68	5508
3	243	36	2916	69	5589
4	324	37	2997	70	5670
5	405	38	3078	71	5751
6	486	39	3159	72	5832
7	567	40	3240	73	5913
8	648	41	3321	74	5994
9	729	42	3402	75	6075
10	810	43	3483	75	6156
11	891	44	3564	77	6237
12	972	45	3645	78	6318
13	1053	46	3726	79	6399
14	1134	47	3807	80	6480
15	1215	48	3888	81	6561
16	1296	49	3969	82	6642
17	1377	50	4050	83	6723
18	1458	51	4131	84	6804
19	1539	52	4212	85	6885
20	1620	53	4293	86	6966
21	1701	54	4374	87	7047
22	1782	55	4455	88	7128
23	1863	56	4536	89	7209
24	1944	57	4617	90	7290
25	2025	58	4698	91	7371
26	2106	59	4779	92	7452
27	2187	60	4860	93	7533
28	2268	61	4941	94	7614
29	2349	62	5022	95	7695
30	2430	63	5103	96	7776
31	2511	64	5184	97	7857
32	2592	65	5265	98	7938
33	2673	66	5346	99	8019
				100	8100

82		82		82	
1	82	34	2788	67	5494
2	164	35	2870	68	5576
3	246	36	2952	69	5658
4	328	37	3034	70	5740
5	410	38	3116	71	5822
6	492	39	3198	72	5904
7	574	40	3280	73	5986
8	656	41	3362	74	6068
9	738	42	3444	75	6150
10	820	43	3526	76	6232
11	902	44	3608	77	6314
12	984	45	3690	78	6396
13	1066	46	3772	79	6478
14	1148	47	3854	80	6560
15	1230	48	3936	81	6642
16	1312	49	4018	82	6724
17	1394	50	4100	83	6806
18	1476	51	4182	84	6888
19	1558	52	4264	85	6970
20	1640	53	4346	86	7052
21	1722	54	4428	87	7134
22	1804	55	4510	88	7216
23	1886	56	4592	89	7298
24	1968	57	4674	90	7380
25	2050	58	4756	91	7462
26	2132	59	4838	92	7544
27	2214	60	4920	93	7626
28	2296	61	5002	94	7708
29	2378	62	5084	95	7790
30	2460	63	5166	96	7872
31	2542	64	5248	97	7954
32	2624	65	5330	98	8036
33	2706	66	5412	99	8118
				100	8200

83		83		83	
1	83	34	2822	67	5561
2	166	35	2905	68	5644
3	249	36	2988	69	5727
4	332	37	3071	70	5810
5	415	38	3154	71	5893
6	498	39	3237	72	5976
7	581	40	3320	73	6059
8	664	41	3403	74	6142
9	747	42	3486	75	6225
10	830	43	3569	76	6308
11	913	44	3652	77	6391
12	996	45	3735	78	6474
13	1079	46	3818	79	6557
14	1162	47	3901	80	6640
15	1245	48	3984	81	6723
16	1328	49	4067	82	6806
17	1411	50	4150	83	6889
18	1494	51	4233	84	6972
19	1577	52	4316	85	7055
20	1660	53	4399	86	7138
21	1743	54	4482	87	7221
22	1826	55	4565	88	7304
23	1909	56	4648	89	7387
24	1992	57	4731	90	7470
25	2075	58	4814	91	7553
26	2158	59	4897	92	7636
27	2241	60	4980	93	7719
28	2324	61	5063	94	7802
29	2407	62	5146	95	7885
30	2490	63	5229	96	7968
31	2573	64	5312	97	8051
32	2656	65	5395	98	8134
33	2739	66	5478	99	8217
				100	8300

84		84		84	
1	84	34	2856	67	5628
2	168	35	2940	68	5712
3	252	36	3024	69	5796
4	336	37	3108	70	5880
5	420	38	3192	71	5964
6	504	39	3276	72	6048
7	588	40	3360	73	6132
8	672	41	3444	74	6216
9	756	42	3528	75	6300
10	840	43	3612	76	6384
11	924	44	3696	77	6468
12	1008	45	3780	78	6552
13	1092	46	3864	79	6636
14	1176	47	3948	80	6720
15	1260	48	4032	81	6804
16	1344	49	4116	82	6888
17	1428	50	4200	83	6972
18	1512	51	4284	84	7056
19	1596	52	4368	85	7140
20	1680	53	4452	86	7224
21	1764	54	4536	87	7308
22	1848	55	4620	88	7392
23	1932	56	4704	89	7476
24	2016	57	4788	90	7560
25	2100	58	4872	91	7644
26	2184	59	4956	92	7728
27	2268	60	5040	93	7812
28	2352	61	5124	94	7896
29	2436	62	5208	95	7980
30	2520	63	5292	96	8064
31	2604	64	5376	97	8148
32	2688	65	5460	98	8232
33	2772	66	5544	99	8316
				100	8400

85		85		65	
1	85	34	2890	67	5695
2	170	35	2975	68	5780
3	255	36	3060	69	5865
4	340	37	3145	70	5950
5	425	38	3230	71	6035
6	510	39	3315	72	6120
7	595	40	3400	73	6205
8	680	41	3485	74	6290
9	765	42	3570	75	6375
10	850	43	3655	76	6460
11	935	44	3740	77	6545
12	1020	45	3825	78	6630
13	1105	46	3910	79	6715
14	1190	47	3995	80	6800
15	1275	48	4080	81	6885
16	1360	49	4165	82	6970
17	1445	50	4250	83	1055
18	1530	51	4335	84	7140
19	1615	52	4420	85	7225
20	1700	53	4505	86	7310
21	1785	54	4590	87	7395
22	1870	55	4675	88	7480
23	1955	56	4760	89	7565
24	2040	57	4845	90	7650
25	2125	58	4930	91	7735
26	2210	59	5015	92	7820
27	2295	60	5100	93	7905
28	2380	61	5185	94	7990
29	2465	62	5270	95	8075
30	2550	63	5355	96	8160
31	2635	64	5440	97	8245
32	2720	65	5525	98	8330
33	2805	66	5610	99	8415
				100	8500

85		86		86	
1	86	34	2924	67	5762
2	172	35	3010	68	5848
3	258	36	3096	69	5934
4	344	37	3182	70	6020
5	430	38	3268	71	6106
6	516	39	3354	72	6192
7	602	40	3440	73	6278
8	688	41	3526	74	6364
9	774	42	3612	75	6450
10	860	43	3698	76	6536
11	946	44	3784	77	6622
12	1032	45	3870	78	6708
13	1118	46	3956	79	6794
14	1204	47	4042	80	6880
15	1290	48	4128	81	6966
16	1376	49	4214	82	7052
17	1462	50	4300	83	7138
18	1548	51	4386	84	7224
19	1634	52	4472	85	7310
20	1720	53	4558	86	7396
21	1806	54	4644	87	7482
22	1892	55	4730	88	7568
23	1978	56	4816	89	7654
24	2064	57	4902	90	7740
25	2150	58	4988	91	7826
26	2236	59	5074	92	7912
27	2322	60	5160	93	7998
28	2408	61	5246	94	8084
29	2494	62	5332	95	8170
30	2580	63	5418	96	8256
31	2666	64	5504	97	8342
32	2752	65	5590	98	8428
33	2838	66	5676	99	8514
				100	8600

87		87		87	
1	87	34	2958	67	5829
2	174	35	3045	68	5916
3	261	36	3132	69	6003
4	348	37	3219	70	6090
5	435	38	3306	71	6177
6	522	39	3393	72	6264
7	609	40	3480	73	6351
8	696	41	3567	74	6438
9	783	42	3654	75	6525
10	870	43	3741	76	6612
11	957	44	3828	77	6699
12	1044	45	3915	78	6786
13	1131	46	4002	79	6873
14	1218	47	4089	80	6960
15	1305	48	4176	81	7047
16	1392	49	4263	82	7134
17	1479	50	4350	83	7221
18	1566	51	4437	84	7308
19	1653	52	4524	85	7395
20	1740	53	4611	86	7482
21	1827	54	4698	87	7569
22	1914	55	4785	88	7656
23	2001	56	4872	89	7743
24	2088	57	4959	90	7830
25	2175	58	5046	91	7917
26	2262	59	5133	92	8004
27	2349	60	5220	93	8091
28	2436	61	5307	94	8178
29	2523	62	5394	95	8265
30	2610	63	5481	96	8352
31	2697	64	5568	97	8439
32	2784	65	5655	98	8526
33	2871	66	5742	99	8613
				100	8700

88		88		88	
1	88	34	2992	67	5896
2	176	35	3080	68	5984
3	264	36	3168	69	6072
4	352	37	3256	70	6160
5	440	38	3344	71	6248
6	528	39	3432	72	6336
7	616	40	3520	73	6424
8	704	41	3608	74	6512
9	792	42	3696	75	6600
10	880	43	3784	76	6688
11	968	44	3872	77	6776
12	1056	45	3960	78	6864
13	1144	45	4048	79	6952
14	1232	47	4136	80	7040
15	1320	48	4224	81	7128
16	1408	49	4312	82	7216
17	1496	50	4400	83	7304
18	1584	51	4488	84	7392
19	1672	52	4576	85	7480
20	1760	53	4664	86	7568
21	1848	54	4752	87	7656
22	1936	55	4840	88	7744
23	2024	56	4928	89	7832
24	2112	57	5016	90	7920
25	2200	58	5104	91	8008
26	2288	59	5192	92	8096
27	2376	60	5280	93	8184
28	2464	61	5368	94	8272
29	2552	62	5456	95	8360
30	2640	63	5544	96	8448
31	2728	64	5632	97	8536
32	2816	65	5720	98	8624
33	2904	66	5808	99	8712
				100	8800

89		89		89	
1	89	34	3026	67	5963
2	178	35	3115	68	6052
3	267	36	3204	69	6141
4	356	37	3293	70	6230
5	445	38	3382	71	6319
6	534	39	3471	72	6408
7	623	40	3560	73	6497
8	712	41	3649	74	6586
9	801	42	3738	75	6675
10	890	43	3827	76	6764
11	979	44	3916	77	6853
12	1068	45	4005	78	6942
13	1157	46	4094	79	7031
14	1246	47	4183	80	7120
15	1335	48	4272	81	7209
16	1424	49	4361	82	7298
17	1513	50	4450	83	7387
18	1602	51	4539	84	7476
19	1691	52	4628	85	7565
20	1780	53	4717	86	7654
21	1869	54	4806	87	7743
22	1958	55	4895	88	7832
23	2047	56	4984	89	7921
24	2136	57	5073	90	8010
25	2225	58	5162	91	8099
26	2314	59	5251	92	8188
27	2403	60	5340	93	8277
28	2492	61	5429	94	8366
29	2581	62	5518	95	8455
30	2670	63	5607	96	8544
31	2759	64	5696	97	8633
32	2848	65	5785	98	8722
33	2937	66	5874	99	8811
				100	8900

90		90		90	
1	90	34	3060	67	6030
2	180	35	3150	68	6120
3	270	36	3240	69	6210
4	360	37	3330	70	6300
5	450	38	3420	71	6390
6	540	39	3510	72	6480
7	630	40	3600	73	6570
8	720	41	3690	74	6660
9	810	42	3780	75	6750
10	900	43	3870	76	6840
11	990	44	3960	77	6930
12	1080	45	4050	78	7020
13	1170	46	4140	79	7110
14	1260	47	4230	80	7200
15	1350	48	4320	81	7290
16	1440	49	4410	82	7380
17	1530	50	4500	83	7470
18	1620	51	4590	84	7560
19	1710	52	4680	85	7650
20	1800	53	4770	86	7740
21	1890	54	4860	87	7830
22	1980	55	4950	88	7920
23	2070	56	5040	89	8010
24	2160	57	5130	90	8100
25	2250	58	5220	91	8190
26	2340	59	5310	92	8280
27	2430	60	5400	93	8370
28	2520	61	5490	94	8460
29	2610	62	5580	95	8550
30	2700	63	5670	96	8640
31	2790	64	5760	97	8730
32	2880	65	5850	98	8820
33	2970	66	5940	99	8910
				100	9000

91		91		91	
1	91	34	3094	67	6097
2	182	35	3185	68	6188
3	273	36	3276	69	6279
4	364	37	3367	70	6370
5	455	38	3458	71	6461
6	546	39	3549	72	6552
7	637	40	3640	73	6643
8	728	41	3731	74	6734
9	819	42	3822	75	6825
10	910	43	3913	76	6916
11	1001	44	4004	77	7007
12	1092	45	4095	78	7098
13	1183	46	4186	79	7189
14	1274	47	4277	80	7280
15	1365	48	4368	81	7371
16	1456	49	4459	82	7462
17	1547	50	4550	83	7553
18	1638	51	4641	84	7644
19	1729	52	4732	85	7735
20	1820	53	4823	86	7826
21	1911	54	4914	87	7917
22	2002	55	5005	88	8008
23	2093	56	5096	89	8099
24	2184	57	5187	90	8190
25	2275	58	5278	91	8281
26	2366	59	5369	92	8372
27	2457	60	5460	93	8463
28	2548	61	5551	94	8554
29	2639	62	5642	95	8645
30	2730	63	5733	96	8736
31	2821	64	5824	97	8827
32	2912	65	5915	98	8918
33	3003	66	6006	99	9009
				100	9100

92		92		92	
1	92	34	3128	67	6164
2	184	35	3220	68	6256
3	276	36	3312	69	6348
4	368	37	3404	70	6440
5	460	38	3496	71	6532
6	552	39	3588	72	6624
7	644	40	3680	73	6716
8	736	41	3772	74	6808
9	828	42	3864	75	6900
10	920	43	3956	76	6992
11	1012	44	4048	77	7084
12	1104	45	4140	78	7176
13	1196	46	4232	79	7268
14	1288	47	4324	80	7360
15	1380	48	4416	81	7452
16	1472	49	4508	82	7544
17	1564	50	4600	83	7636
18	1656	51	4692	84	7728
19	1748	52	4784	85	7820
20	1840	53	4876	86	7912
21	1932	54	4968	87	8[illegible]04
22	2024	55	5060	88	8096
23	2116	56	5152	89	8188
24	2208	57	5244	90	8280
25	2300	58	5336	91	8372
26	2392	59	5428	92	8464
27	2484	60	5520	93	8556
28	2576	61	5612	94	8648
29	2668	62	5704	95	8740
30	2760	63	5796	96	8832
31	2852	64	5888	97	8924
32	2944	65	5980	98	9016
33	3036	66	6072	99	9108
				100	9200

93		93		93	
1	93	34	3102	67	6231
2	186	35	3255	68	6324
3	279	36	3348	69	6417
4	372	37	3441	70	6510
5	465	38	3534	71	6603
6	558	39	3627	72	6696
7	651	40	3720	73	6789
8	744	41	3813	74	6882
9	837	42	3906	75	6975
10	930	43	3999	76	7068
11	1023	44	4092	77	7161
12	1116	45	4185	78	7254
13	1209	46	4278	79	7347
14	1302	47	4371	80	7440
15	1395	48	4464	81	7533
16	1488	49	4557	82	7626
17	1581	50	4650	83	7719
18	1674	51	4743	84	7812
19	1767	52	4836	85	7905
20	1860	53	4929	86	7998
21	1953	54	5022	87	8091
22	2046	55	5115	88	8184
23	2139	56	5208	89	8277
24	2232	57	5301	90	8370
25	2325	58	5394	91	8463
26	2418	59	5487	92	8556
27	2511	60	5580	93	8649
28	2604	61	5673	94	8742
29	2697	62	5766	95	8835
30	2790	63	5859	96	8928
31	2883	64	5952	97	9021
32	2976	65	6045	98	9114
33	3069	66	6138	99	9207
				100	9300

94		94		94	
1	94	34	3196	67	6298
2	188	35	3290	68	6392
3	282	36	3384	69	6486
4	376	37	3478	70	6580
5	470	38	3572	71	6074
6	564	39	3666	72	6768
7	658	40	3760	73	6862
8	752	41	3854	74	6956
9	846	42	3948	75	7050
10	940	43	4042	76	7144
11	1034	44	4136	77	7238
12	1128	45	4230	78	7332
13	1222	46	4324	79	7426
14	1316	47	4418	80	7520
15	1410	48	4512	81	7614
16	1504	49	4606	82	7708
17	1598	50	4700	83	7802
18	1692	51	4794	84	7896
19	1786	52	4888	85	7990
20	1880	53	4982	86	8084
21	1974	54	5076	87	8178
22	2068	55	5170	88	8272
23	2162	56	5264	89	8366
24	2256	57	5358	90	8460
25	2350	58	5452	91	8554
26	2444	59	5545	92	8648
27	2538	60	5640	93	8742
28	2632	61	5734	94	8836
29	2726	62	5828	95	8930
30	2820	63	5922	96	9024
31	2914	64	6016	97	9118
32	3008	65	6110	98	9212
33	3102	66	6204	99	9306
				100	9400

95		95		95	
1	95	34	3230	67	6365
2	190	35	3325	68	6460
3	285	36	3420	69	6555
4	380	37	3515	70	6650
5	475	38	3610	71	6745
6	570	39	3705	72	6840
7	665	40	3800	73	6935
8	760	41	3895	74	7030
9	855	42	3990	75	7125
10	950	43	4085	76	7220
11	1045	44	4180	77	7315
12	1140	45	4275	78	7410
13	1235	46	4370	79	7505
14	1330	47	4465	80	7600
15	1425	48	4560	81	7695
16	1520	49	4655	82	7790
17	1615	50	4750	83	7885
18	1710	51	4845	84	7980
19	1805	52	4940	85	8075
20	1900	53	5035	86	8170
21	1995	54	5130	87	8265
22	2090	55	5225	88	8360
23	2185	56	5320	89	8455
24	2280	57	5415	90	8550
25	2375	58	5510	91	8645
26	2470	59	5605	92	8740
27	2565	60	5700	93	8835
28	2660	61	5795	94	8930
29	2755	62	5890	95	9025
30	2850	63	5985	96	9120
31	2945	64	6080	97	9215
32	3040	65	6175	98	9310
33	3135	66	6270	99	9405
				100	9500

96		96		96	
1	96	34	3264	67	6432
2	192	35	3360	68	6528
3	288	36	3456	69	6624
4	384	37	3552	70	6720
5	480	38	3648	71	6816
6	576	39	3744	72	6912
7	672	40	3840	73	7008
8	768	41	3936	74	7104
9	864	42	4032	75	7200
10	960	43	4128	76	7296
11	1056	44	4224	77	7392
12	1152	45	4320	78	7488
13	1248	46	4416	79	7584
14	1344	47	4512	80	7680
15	1440	48	4608	81	7776
16	1536	49	4704	82	7872
17	1632	50	4800	83	7968
18	1728	51	4896	84	8064
19	1824	52	4992	85	8160
20	1920	53	5088	86	8256
21	2016	54	5184	87	8352
22	2112	55	5280	88	8448
23	2208	56	5376	89	8544
24	2304	57	5472	90	8640
25	2400	58	5568	91	8736
26	2496	59	5664	92	8832
27	2592	60	5760	93	8928
28	2688	61	5856	94	9024
29	2784	62	5952	95	9120
30	2880	63	6048	96	9216
31	2976	64	6144	97	9312
32	3072	65	6240	98	9408
33	3168	66	6336	99	9504
				100	9600

97		97		97	
1	97	34	3298	67	6499
2	194	35	3395	68	6596
3	291	36	3492	69	6693
4	388	37	3589	70	6790
5	485	38	3686	71	6887
6	582	39	3783	72	6984
7	679	40	3880	73	7081
8	776	41	3977	74	7178
9	873	42	4074	75	7275
10	970	43	4171	76	7372
11	1067	44	4268	77	7469
12	1164	45	4365	78	7566
13	1261	46	4462	79	7663
14	1358	47	4559	80	7760
15	1455	48	4656	81	7857
16	1552	49	4753	82	7954
17	1649	50	4850	83	8051
18	1746	51	4947	84	8148
19	1843	52	5044	85	8245
20	1940	53	5141	86	8342
21	2037	54	5238	87	8439
22	2134	55	5335	88	8536
23	2231	56	5432	89	8633
24	2328	57	5529	90	8730
25	2425	58	5625	91	8827
26	2522	59	5723	92	8924
27	2619	60	5820	93	9021
28	2716	61	5917	94	9118
29	2813	62	6014	95	9215
30	2910	63	6111	96	9312
31	3007	64	6208	97	9409
32	3104	65	6305	98	9505
33	3201	66	6402	99	9603
				100	9700

98		98		98	
1	98	34	3332	67	6566
2	196	35	3430	68	6664
3	294	36	3528	69	6762
4	392	37	3626	70	6860
5	490	38	3724	71	6958
6	588	39	3822	72	7056
7	686	40	3920	73	7154
8	784	41	4018	74	7252
9	882	42	4116	75	7350
10	980	43	4214	76	7448
11	1078	44	4312	77	7546
12	1176	45	4410	78	7644
13	1274	46	4508	79	7742
14	1372	47	4606	80	7840
15	1470	48	4704	81	7938
16	1568	49	4802	82	8036
17	1666	50	4900	83	8134
18	1764	51	4998	84	8232
19	1862	52	5096	85	8330
20	1960	53	5194	86	8428
21	2058	54	5292	87	8526
22	2156	55	5390	88	8624
23	2254	56	5488	89	8722
24	2352	57	5586	90	8820
25	2450	58	5584	91	8918
26	2548	59	5782	92	9016
27	2646	60	5880	93	9114
28	2744	61	5978	94	9212
29	2842	62	6076	95	9310
30	2940	63	6174	96	9408
31	3038	64	6272	97	9506
32	3136	65	6370	98	9604
33	3234	66	6468	99	9702
				100	9800

99		99		99	
1	99	34	3366	67	6633
2	198	35	3465	68	6732
3	297	36	3564	69	6831
4	396	37	3663	70	6930
5	495	38	3762	71	7029
6	594	39	3861	72	7128
7	693	40	3960	73	7227
8	792	41	4059	74	7326
9	891	42	4158	75	7425
10	990	43	4257	76	7524
11	1089	44	4356	77	7623
12	1188	45	4455	78	7722
13	1287	46	4554	79	7821
14	1386	47	4653	80	7920
15	1485	48	4752	81	8019
16	1584	49	4851	82	8118
17	1683	50	4950	83	8217
18	1782	51	5049	84	8316
19	1881	52	5148	85	8415
20	1980	53	5247	86	8514
21	2079	54	5346	87	8513
22	2178	55	5445	88	8712
23	2277	56	5544	89	8811
24	2376	57	5643	90	8910
25	2475	58	5742	91	9009
26	2574	59	5841	92	9108
27	2673	60	5940	93	9207
28	2772	61	6039	94	9306
29	2871	62	6138	95	9405
30	2970	63	6237	96	9504
31	3069	64	6336	97	9603
32	3168	65	6435	98	9702
33	3267	66	6534	99	9801
				100	9900

100		100		100	
1	100	34	3400	67	6700
2	200	35	3500	68	6800
3	300	36	3600	69	6900
4	400	37	3700	70	7000
5	500	38	3800	71	7100
6	600	39	3900	72	7200
7	700	40	4000	73	7300
8	800	41	4100	74	7400
9	900	42	4200	75	7500
10	1000	43	4300	76	7600
11	1100	44	4400	77	7700
12	1200	45	4500	78	7800
13	1300	46	4600	79	7900
14	1400	47	4700	80	8000
15	1500	48	4800	81	8100
16	1600	49	4900	82	8200
17	1700	50	5000	83	8300
18	1800	51	5100	84	8400
19	1900	52	5200	85	8500
20	2000	53	5300	86	8600
21	2100	54	5400	87	8700
22	2200	55	5500	88	8800
23	2300	56	5600	89	8900
24	2400	57	5700	90	9000
25	2500	58	5800	91	9100
26	2600	59	5900	92	9200
27	2700	60	6000	93	9300
28	2800	61	6100	94	9400
29	2900	62	6200	95	9500
30	3000	63	6300	96	9600
31	3100	64	6400	97	9700
32	3200	65	6500	98	9800
33	3300	66	6600	99	9900
				100	10000

110		110		110	
1	112	34	3740	67	7370
2	220	35	3850	68	7480
3	330	36	3960	69	7590
4	440	37	4070	70	7700
5	550	38	4180	71	7810
6	660	39	4290	72	7920
7	770	40	4400	73	8030
8	880	41	4510	74	8140
9	990	42	4620	75	8250
10	1100	43	4730	76	8360
11	1210	44	4840	77	8470
12	1320	45	4950	78	8580
13	1430	46	5060	79	8690
14	1540	47	5170	80	8800
15	1650	48	5280	81	8910
16	1760	49	5390	82	9020
17	1870	50	5500	83	9130
18	1980	51	5610	84	9240
19	2090	52	5720	85	9350
20	2200	53	5830	86	9460
21	2310	54	5940	87	9570
22	2420	55	6050	88	9680
23	2530	56	6160	89	9790
24	2640	57	6270	90	9900
25	2750	58	6380	91	10010
26	2860	59	6490	92	10120
27	2970	60	6600	93	10230
28	3080	61	6710	94	10340
29	3190	62	6820	95	10450
30	3300	63	6930	96	10560
31	3410	64	7040	97	10670
32	3520	65	7150	98	10780
33	3630	66	7260	99	10890
				100	11000

120		120		120	
1	120	34	4080	67	8040
2	240	35	4200	68	8160
3	360	36	4320	69	8280
4	480	37	4440	70	8400
5	600	38	4560	71	8520
6	720	39	4680	72	8640
7	840	40	4800	73	8760
8	960	41	4920	74	8880
9	1080	42	5040	75	9000
10	1200	43	5160	76	9120
11	1320	44	5280	77	9240
12	1440	45	5400	78	9360
13	1560	46	5520	79	9480
14	1680	47	5640	80	9600
15	1800	48	5760	81	9720
16	1920	49	5880	82	9840
17	2040	50	6000	83	9960
18	2160	51	6120	84	10080
19	2280	52	6240	85	10200
20	2400	53	6360	86	10320
21	2520	54	6480	87	10440
22	2640	55	6600	88	10560
23	2760	56	6720	89	10680
24	2880	57	6840	90	10800
25	3000	58	6960	91	10920
26	3120	59	7080	92	11040
27	3240	60	7200	93	11160
28	3360	61	7320	94	11280
29	3480	62	7440	95	11400
30	3600	63	7560	96	11520
31	3720	64	7680	97	11640
32	3840	65	7800	98	11760
33	3960	66	7920	99	11880
				100	12000

130		130		130	
1	130	34	4420	67	8710
2	260	35	4550	68	8840
3	390	36	4680	69	8970
4	520	37	4810	70	9100
5	650	38	4940	71	9230
6	780	39	5070	72	9360
7	910	40	5200	73	9490
8	1040	41	5330	74	9620
9	1170	42	5460	75	9750
10	1300	43	5590	76	9880
11	1430	44	5720	77	10010
12	1560	45	5850	78	10140
13	1690	46	5980	79	10270
14	1820	47	6110	80	10400
15	1950	48	6240	81	10530
16	2080	49	6370	82	10660
17	2210	50	6500	83	10790
18	2340	51	6630	84	10920
19	2470	52	6760	85	11050
20	2600	53	6890	86	11180
21	2730	54	7020	87	11310
22	2860	55	7150	88	11440
23	2990	56	7280	89	11570
24	3120	57	7410	90	11700
25	3250	58	7540	91	11830
26	3380	59	7670	92	11960
27	3510	60	7800	93	12090
28	3640	61	7930	94	12220
29	3770	62	8060	95	12350
30	3900	63	8190	96	12480
31	4030	64	8320	97	12610
32	4160	65	8450	98	12740
33	4290	66	8580	99	12870
				100	13000

140		140		140	
1	140	34	4760	67	9380
2	280	35	4900	68	9520
3	420	36	5040	69	9660
4	560	37	5180	70	9800
5	700	38	5320	71	9940
6	840	39	5460	72	10080
7	980	40	5600	73	10220
8	1120	41	5740	74	10360
9	1260	42	5880	75	10500
10	1400	43	6020	76	10640
11	1540	44	6160	77	10780
12	1680	45	6300	78	10920
13	1820	46	6440	79	11060
14	1960	47	6580	80	11200
15	2100	48	6720	81	11340
16	2240	49	6860	82	11480
17	2380	50	7000	83	11620
18	2520	51	7140	84	11760
19	2660	52	7280	85	11900
20	2800	53	7420	86	12040
21	2940	54	7560	87	12180
22	3080	55	7700	88	12320
23	3220	56	7840	89	12460
24	3360	57	7980	90	12600
25	3500	58	8120	91	12740
26	3640	59	8260	92	12880
27	3780	60	8400	93	13020
28	3920	61	8540	94	13160
29	4060	62	8680	95	13300
30	4200	63	8820	96	13440
31	4340	64	8960	97	13580
32	4480	65	9100	98	13720
33	4620	66	9240	99	13860
				100	14000

150		150		150	
1	150	34	5100	67	10050
2	300	35	5250	68	10200
3	450	36	5400	69	10350
4	600	37	5550	70	10500
5	750	38	5700	71	10650
6	900	39	5859	72	10800
7	1050	40	6000	73	10950
8	1200	41	6150	74	11100
9	1350	42	6300	75	11250
10	1500	43	6450	76	11400
11	1650	44	6600	77	11550
12	1800	45	6750	78	11700
13	1950	46	6900	79	11850
14	2100	47	7050	80	12000
15	2250	48	7200	81	12150
16	2400	49	7350	82	12300
17	2550	50	7500	83	12450
18	2700	51	7650	84	12600
19	2850	52	7800	85	12750
20	3000	53	7950	86	12900
21	3150	54	8100	87	13050
22	3300	55	8250	88	13200
23	3450	56	8400	89	13350
24	3600	57	8550	90	13500
25	3750	58	8700	91	13650
26	3900	59	8850	92	13800
27	4050	60	9000	93	13950
28	4200	61	9150	94	14100
29	4350	62	9300	95	14250
30	4500	63	9450	96	14400
31	4650	64	9600	97	14550
32	4800	65	9750	98	14700
33	4950	66	9900	99	14850
				100	15000

160		160		160	
1	160	34	5440	67	10720
2	320	35	5600	68	10880
3	480	36	5760	69	11040
4	640	37	5920	70	11200
5	800	38	6080	71	11360
6	960	39	6240	72	11520
7	1120	40	6400	73	11680
8	1280	41	6560	74	11840
9	1440	42	6720	75	12000
10	1600	43	6880	76	12160
11	1760	44	7040	77	12320
12	1920	45	7200	78	12480
13	2080	46	7360	79	12640
14	2240	47	7520	80	12800
15	2400	48	7680	81	12960
16	2560	49	7840	82	13120
17	2720	50	8000	83	13280
18	2880	51	8160	84	13440
19	3040	52	8320	85	13600
20	3200	53	8480	86	13760
21	3360	54	8640	87	13920
22	3520	55	8800	88	14080
23	3680	56	8960	89	14240
24	3840	57	9120	90	14400
25	4000	58	9280	91	14560
26	4160	59	9440	92	14720
27	4320	60	9600	93	14880
28	4480	61	9760	94	15040
29	4640	62	9920	95	15200
30	4800	63	10080	96	15360
31	4960	64	10240	97	15520
32	5120	65	10400	98	15680
33	5280	66	10560	99	15840
				100	16000

170		170		170	
1	170	34	5780	67	11390
2	340	35	5950	68	11560
3	510	36	6120	69	11730
4	680	37	6290	70	11900
5	850	38	6460	71	12070
6	1020	39	6630	72	12240
7	1190	40	6800	73	12410
8	1360	41	6970	74	12580
9	1530	42	7140	75	12750
10	1700	43	7310	76	12920
11	1870	44	7480	77	13090
12	2040	45	7650	78	13260
13	2210	46	7820	79	13430
14	2380	47	7990	80	13600
15	2550	48	8160	81	13770
16	2720	49	8330	82	13940
17	2890	50	8500	83	14110
18	3060	51	8670	84	14280
19	3230	52	8840	85	14450
20	3400	53	9010	86	14620
21	3570	54	9180	87	14790
22	3740	55	9350	88	14960
23	3910	56	9520	89	15130
24	4080	57	9690	90	15300
25	4250	58	9860	91	15470
26	4420	59	10030	92	15640
27	4590	60	10200	93	15810
28	4760	61	10370	94	15980
29	4930	62	10540	95	16150
30	5100	63	10710	96	16320
31	5270	64	10880	97	16490
32	5440	65	11050	98	16660
33	5610	66	11220	99	16830
				100	17000

180		180		180	
1	180	34	6120	67	12060
2	360	35	6300	68	12240
3	540	36	6480	69	12420
4	720	37	6660	70	12600
5	900	38	6840	71	12780
6	1080	39	7020	72	12960
7	1260	40	7200	73	13140
8	1440	41	7380	74	13320
9	1620	42	7560	75	13500
10	1800	43	7740	76	13680
11	1980	44	7920	77	13860
12	2160	45	8100	78	14040
13	2340	46	8280	79	14220
14	2520	47	8460	80	14400
15	2700	48	8640	81	14580
16	2880	49	8820	82	14760
17	3060	50	9000	83	14940
18	3240	51	9180	84	15120
19	3420	52	9360	85	15300
20	3600	53	9540	86	15480
21	3780	54	9720	87	15660
22	3960	55	9900	88	15840
23	4140	56	10080	89	16020
24	4320	57	10260	90	16200
25	4500	58	10440	91	16380
26	4680	59	10620	92	16560
27	4860	60	10800	93	16740
28	5040	61	10980	94	16920
29	5220	62	11160	95	17100
30	5400	63	11340	96	17280
31	5580	64	11520	97	17460
32	5760	65	11700	98	17640
33	5940	66	11880	99	17820
				100	18000

190		190		190	
1	190	34	6460	67	12730
2	380	35	6650	68	12920
3	570	36	6840	69	13110
4	760	37	7030	70	13300
5	950	38	7220	71	13490
6	1140	39	7410	72	13680
7	1330	40	7600	73	13870
8	1520	41	7790	74	14060
9	1710	42	7980	75	14250
10	1900	43	8170	76	14440
11	2090	44	8360	77	14630
12	2280	45	8550	78	14820
13	2470	46	8740	79	15010
14	2660	47	8930	80	15200
15	2850	48	9120	81	15390
16	3040	49	9310	82	15580
17	3230	50	9500	83	15770
18	3420	51	9690	84	15960
19	3610	52	9880	85	16150
20	3800	53	10070	86	16340
21	3990	54	10260	87	16530
22	4180	55	10450	88	16720
23	4370	56	10640	89	16910
24	4560	57	10830	90	17100
25	4750	58	11020	91	17290
26	4940	59	11210	92	17480
27	5130	60	11400	93	17670
28	5320	61	11590	94	17860
29	5510	62	11780	95	18050
30	5700	63	11970	96	18240
31	5890	64	12160	97	18430
32	6080	65	12350	98	18620
33	6270	66	12540	99	18810
				100	19000

200		200		200	
1	200	34	6800	67	13400
2	400	35	7000	68	13600
3	600	36	7200	69	13800
4	800	37	7400	70	14000
5	1000	38	7600	71	14200
6	1200	39	7800	72	14400
7	1400	40	8000	73	14600
8	1600	41	8200	74	14800
9	1800	42	8400	75	15000
10	2000	43	8600	76	15200
11	2200	44	8800	77	15400
12	2400	45	9000	78	15600
13	2600	46	9200	79	15800
14	2800	47	9400	80	16000
15	3000	48	9600	81	16200
16	3200	49	9800	82	26400
17	3400	50	10000	83	16600
18	3600	51	10200	84	16800
19	3800	52	10400	85	17000
20	4000	53	10600	86	17200
21	4200	54	10800	87	17400
22	4400	55	11000	88	17600
23	4600	56	11200	89	17800
24	4800	57	11400	90	18000
25	5000	58	11600	91	18200
26	5200	59	11800	92	18400
27	5400	60	12000	93	18600
28	5600	61	12200	94	18800
29	5800	62	12400	95	19000
30	6000	63	12600	96	19200
31	6200	64	12800	97	19400
32	6400	65	13000	98	19600
33	6600	66	13200	99	19800
				100	20000

300		300		300	
1	300	34	10200	67	20100
2	600	35	10500	68	20400
3	900	36	10800	69	20700
4	1200	37	11100	70	21000
5	1500	38	11400	71	21300
6	1800	39	11709	72	21600
7	2100	40	12000	73	21900
8	2400	41	12300	74	22200
9	2700	42	12600	75	22500
10	3000	43	12900	76	22800
11	3300	44	13200	77	23100
12	3600	45	13500	78	23400
13	3900	46	13800	79	23700
14	4200	47	14100	80	24000
15	4500	48	14400	81	24300
16	4800	49	14700	82	24600
17	5100	50	15000	83	24900
18	5400	51	15300	84	35200
19	5700	52	15600	85	25500
20	6000	53	15900	86	25800
21	6300	54	16200	87	26100
22	6600	55	16500	88	26400
23	6900	56	16800	89	26700
24	7200	57	17100	90	27000
25	7500	58	17400	91	27300
26	7800	59	17700	92	27600
27	8100	60	18000	93	27900
28	8400	61	18300	94	28200
29	8700	62	18600	95	28500
30	9000	63	18900	96	28800
31	9300	64	19200	97	29100
32	9600	65	19500	98	29400
33	9900	66	19800	99	29700
				100	30000

400		400		400	
1	4000	34	13600	67	26800
2	8000	35	14000	68	27200
3	1200	35	14400	69	27600
4	1600	37	14800	70	28000
5	2000	38	15200	71	28400
6	2400	39	15600	72	28800
7	2800	40	16000	73	29200
8	3200	41	16400	74	29600
9	3600	42	16800	75	30000
10	4000	43	17200	76	30400
11	4400	44	17600	77	30800
12	4800	45	18000	78	31200
13	5200	46	18400	79	31600
14	5600	47	18800	80	32000
15	6000	48	19200	81	32400
16	6400	49	19600	82	32800
17	6800	50	20000	83	33200
18	7200	51	20400	84	33600
19	7600	52	20800	85	34000
20	8000	53	21200	86	34400
21	8400	54	21600	87	34800
22	8800	55	22000	88	35200
23	9200	56	22400	89	35600
24	9600	57	22800	90	36000
25	10000	58	23200	91	36400
26	10400	59	23600	92	36800
27	10800	60	24000	93	37200
28	11200	61	24400	94	37650
29	11600	62	24800	95	38000
30	12000	63	25200	96	38400
31	12400	64	25600	97	38800
32	12800	65	26000	98	39200
33	13200	66	26400	99	39600
				100	40000

500		500		500	
1	500	34	17008	67	33500
2	1000	35	17500	68	34000
3	1500	36	18000	69	34500
4	2000	37	18500	70	35000
5	2500	38	19000	71	35500
6	3000	39	19500	72	36000
7	3500	40	20000	73	36500
8	4000	41	20500	74	37000
9	4500	42	21000	75	37500
10	5000	43	21500	76	38000
11	5500	44	22000	77	38500
12	6000	45	22500	78	39000
13	6500	46	23000	79	39500
14	7000	47	23500	80	40000
15	7500	48	24000	81	40500
16	8000	49	24500	82	41000
17	8500	50	25000	83	41500
18	9000	51	25500	84	42000
19	9500	52	16000	85	42500
20	10000	53	26500	86	43000
21	10500	54	27000	87	43500
22	11000	55	27500	88	44000
23	11500	56	28000	89	44500
24	12000	57	28500	90	45000
25	12500	58	29000	91	45500
26	13000	59	29500	92	46000
27	13500	60	30000	93	46500
28	14000	61	30500	94	47000
29	14500	62	31000	95	47500
30	15000	63	31500	96	48000
31	15500	64	32000	97	48500
32	16000	65	32500	98	49000
33	16500	66	33000	99	49500
				100	50000

600		600		600	
1	600	34	20400	67	40200
2	1200	35	21000	68	40800
3	1800	36	21600	69	41400
4	2400	37	22200	70	42000
5	3000	38	22800	71	42600
6	3600	39	33400	72	43200
7	4200	40	24000	73	43800
8	4800	41	24600	74	44400
9	5400	42	25200	75	45000
10	6000	43	25800	76	45600
11	6600	44	36400	77	46200
12	7200	45	17000	78	46800
13	7600	46	27600	79	47400
14	8400	47	28200	80	48000
15	9000	48	28800	81	48600
16	9600	49	29400	82	49200
17	10200	50	30000	83	49800
18	10800	51	30600	84	50400
19	11400	52	31200	85	51000
20	12000	53	31800	86	51600
21	12600	54	32400	87	52200
22	13200	55	33000	88	52800
23	13800	56	33600	89	53400
24	14400	57	34200	90	54000
25	15000	58	34800	91	54600
26	15600	59	35400	92	55200
27	16200	60	36000	93	55800
28	16800	61	36600	94	56450
29	17400	62	37200	95	57000
30	18000	63	37800	96	57600
31	18600	64	38400	97	58200
32	19200	65	39000	98	58800
33	19800	66	39600	99	59400
				100	60000

700		700.		700	
1	700	34	23800	67	46900
2	1400	35	24500	68	47600
3	2100	36	25200	69	48300
4	2800	37	25900	70	49000
5	3500	38	26600	71	49700
6	4200	39	27300	72	50400
7	4900	40	28000	73	51100
8	5600	41	28700	74	51800
9	6300	42	29400	75	52500
10	7000	43	30100	76	53200
11	7700	44	30800	77	53900
12	8400	45	31500	78	54600
13	9100	45	32200	79	55300
14	9800	47	32900	80	56000
15	10500	48	33600	81	56700
16	11200	49	34300	82	57400
17	11900	50	35000	83	58100
18	12600	51	35700	84	58800
19	13300	52	36400	85	59500
20	14000	53	37100	86	60200
21	14700	54	37800	87	60900
22	15400	55	38500	88	61600
23	16100	55	39200	89	62300
24	16800	57	39900	90	63000
25	17500	58	40600	91	63700
26	18200	59	41300	92	64400
27	18900	60	42000	93	65100
28	19600	61	42700	94	65800
29	20300	62	43400	95	66500
30	21000	63	44100	96	67200
31	21700	64	44800	97	67900
32	22400	65	45500	98	68600
33	23100	66	46200	99	69300
				100	70000

800		800		800	
1	800	34	27208	07	53600
2	1600	35	28000	68	54400
3	2400	36	28800	69	55200
4	3200	37	29600	70	56000
5	4000	38	30400	71	56800
6	4800	39	31200	72	57600
7	5600	40	32000	73	08400
8	6400	41	32800	74	59200
9	7200	42	33600	75	60000
10	8000	43	34400	76	60800
11	8800	44	35200	77	61600
12	9600	45	36000	78	62400
13	10400	46	36800	79	63200
14	11200	47	37600	80	64000
15	12000	48	38400	81	64800
16	12800	49	39200	82	65600
17	13600	50	40000	83	66400
18	14400	51	40800	84	67200
19	15200	52	41600	85	68000
20	16000	53	42400	86	68800
21	16800	54	43200	87	69600
22	17600	55	44000	88	70400
23	18400	56	44800	89	71200
24	19200	57	45600	90	72000
25	10000	58	46400	91	72800
26	20800	59	47200	92	73600
27	21600	60	48000	93	74400
28	22400	61	48800	94	75200
29	23200	62	49600	95	76000
30	24000	63	50400	96	76800
31	24800	64	51200	97	77600
32	25600	65	52000	98	78400
33	26400	66	52800	99	79200
				100	80000

900		900		900	
1	900	34	30600	67	60300
2	1800	35	31500	68	61200
3	2700	36	32400	69	92100
4	3600	37	33300	70	63000
5	4500	38	34200	71	63900
6	5400	39	35100	72	64800
7	6300	40	36000	73	65700
8	7200	41	36900	74	66600
9	8100	42	37800	75	67500
10	9000	43	38700	76	68400
11	9900	44	39600	77	69300
12	10800	45	40500	78	70200
13	11700	46	41400	79	71100
14	12600	47	42300	80	72000
15	13500	48	43200	81	72900
16	14400	49	44100	82	73800
17	15300	50	45000	83	74700
18	16200	51	45900	84	75600
19	17100	52	46800	85	76500
20	18000	53	47700	86	77400
21	18900	54	48600	87	78300
22	19800	55	49500	88	79200
23	20700	56	50400	89	80100
24	21600	57	51300	90	81000
25	22500	58	52200	91	81900
26	23400	59	53100	92	82800
27	24300	60	54000	93	83700
28	25200	61	54900	94	84600
29	26100	62	55800	95	85500
30	27000	63	56700	96	86400
31	27900	64	57600	97	87300
32	28800	65	58500	98	88200
33	29700	66	59400	99	89100
				100	90000

1000		1000		1000	
1	1000	34	34000	67	67000
2	2000	35	35000	68	68000
3	3000	36	36000	69	65000
4	4000	37	37000	70	70000
5	5000	38	38000	71	71000
6	6000	39	39000	72	72000
7	7000	40	40000	73	73000
8	8000	41	41000	74	74000
9	9000	42	42000	75	75000
10	10000	43	43000	76	76000
11	11000	44	44000	77	77000
12	12000	45	45000	78	78000
13	13000	46	46000	79	79000
14	14000	47	47000	80	80000
15	15000	48	48000	81	81000
16	16000	49	49000	82	82000
17	17000	50	50000	83	83000
18	18000	51	51000	84	84000
19	19000	52	52000	85	85000
20	20000	53	53000	86	86000
21	21000	54	54000	87	87000
22	22000	55	55000	88	88000
23	23000	56	56000	89	89000
24	24000	57	57000	90	90000
25	25000	58	58000	91	91000
26	26000	59	59000	92	92000
27	27000	60	60000	93	93000
28	28000	61	61000	94	94000
29	29000	62	62000	95	95000
30	30000	63	63000	96	96000
31	31000	64	64000	97	97000
32	32000	65	65000	98	98000
33	33000	66	66000	99	99000
				100	100000

2000		2000		2000	
1	2000	34	68000	67	134000
2	4000	35	70000	68	136000
3	6000	36	72000	69	13800
4	8000	37	74000	70	140000
5	10000	38	76000	71	142000
6	12000	39	78000	72	144000
7	14000	40	80000	73	146000
8	16000	41	82000	74	148000
9	18000	42	84000	75	150000
10	20000	43	86000	76	152000
11	22000	44	88000	77	154000
12	24000	45	90000	78	156000
13	26000	46	92000	79	158000
14	28000	47	94000	80	160000
15	30000	48	96000	81	162000
16	32000	49	98000	82	164000
17	34000	50	100000	83	166000
18	36000	51	102000	84	168000
19	38000	52	104000	85	170000
20	40000	53	106000	86	172000
21	42000	54	108000	87	174000
22	44000	55	110000	88	176000
23	46000	56	112000	89	178000
24	48000	57	114000	90	180000
25	50000	58	116000	91	182000
26	52000	59	118000	92	184000
27	54000	60	120000	93	186000
28	56000	61	122000	94	188000
29	58000	62	124000	95	190000
30	60000	63	126000	96	192000
31	62000	64	128000	97	194000
32	64000	65	130000	98	196000
33	66000	66	132000	99	198000
				100	200000

3000		3000		3000	
1	3000	34	102000	67	201000
2	6000	35	105000	68	204000
3	9000	36	108000	69	207000
4	12000	37	111000	70	210000
5	15000	38	114000	71	213000
6	18000	39	117000	72	216000
7	21000	40	120000	73	219000
8	24000	41	123000	74	222000
9	27000	42	126000	75	225000
10	30000	43	129000	76	228000
11	33000	44	132000	77	231000
12	36000	45	135000	78	234000
13	39000	46	138000	79	237000
14	42000	47	141000	80	240000
15	45000	48	144000	81	243000
16	48000	49	147000	82	246000
17	51000	50	150000	83	249000
18	54000	51	153000	84	252000
19	57000	52	156000	85	255000
20	60000	53	159000	86	258000
21	63000	54	162000	87	261000
22	66000	55	165000	88	264000
23	69000	56	168000	89	267000
24	72000	57	171000	90	270000
25	75000	58	174000	91	273000
26	78000	59	177000	92	276000
27	81000	60	180000	93	279000
28	84000	61	183000	94	282000
29	87000	62	186000	95	285000
30	90000	63	189000	96	288000
31	92000	64	192000	97	291000
32	96000	65	195000	98	294000
33	99000	66	198000	99	297000
				100	300000

4000		4000		4000	
1	4000	34	136000	67	228000
2	8000	35	140000	68	672000
3	12000	36	144000	69	276000
4	16000	37	148000	70	280000
5	20000	38	152000	71	284000
6	24000	39	156000	72	288000
7	28000	40	160000	73	292000
8	32000	41	164000	74	296000
9	36000	42	168000	75	300000
10	40000	43	172000	76	304000
11	44000	44	176000	77	308000
12	48000	45	180000	78	312000
13	52000	46	184000	79	316000
14	56000	47	188000	80	320000
15	60000	48	192000	81	324000
16	64000	49	196000	82	328000
17	68000	50	200000	83	332000
18	72000	51	204000	84	336000
19	76000	52	208000	85	340000
20	80000	53	212000	86	344000
21	84000	54	216000	87	348000
22	88000	55	220000	88	352000
23	92000	56	224000	89	356000
24	96000	57	228000	90	360000
25	100000	58	232000	91	364000
26	104000	59	236000	92	368000
27	108000	60	240000	93	372000
28	112000	61	244000	94	376000
29	116000	62	248000	95	380000
30	120000	63	252000	96	384000
31	124000	64	256000	97	388000
32	128000	65	260000	98	392000
33	132000	66	264000	99	396000
				100	400000

5000		5000		5000	
1	5000	34	170000	67	335000
2	10000	35	175000	68	340000
3	15000	36	180000	69	345000
4	20000	37	185000	70	350000
5	25000	38	190000	71	355000
6	30000	39	195000	72	360000
7	35000	40	200000	73	365000
8	40000	41	205000	74	370000
9	45000	42	210000	75	375000
10	50000	43	215000	76	380000
11	55000	44	220000	77	385000
12	60000	45	225000	78	390000
13	65000	46	230000	79	395000
14	70000	47	235000	80	400000
15	75000	48	240000	81	405000
16	80000	49	245000	82	410000
17	85000	50	250000	83	415000
18	90000	51	255000	84	420000
19	95000	52	260000	85	425000
20	100000	53	265000	86	430000
21	105000	54	270000	87	435000
22	110000	55	275000	88	440000
23	115000	56	280000	89	445000
24	120000	57	285000	90	450000
25	125000	58	290000	91	555000
26	130000	59	295000	92	460000
27	135000	60	300000	93	465000
28	140000	61	305000	94	470000
29	145000	62	310000	95	475000
30	150000	63	315000	96	480000
31	155000	64	320000	97	485000
32	160000	65	325000	98	490000
33	165000	66	330000	99	495000
				100	500000

6000		6000		6000	
1	6000	34	204000	67	402000
2	12000	35	210000	68	408000
3	18000	36	216000	69	414000
4	24000	37	222000	70	420000
5	30000	38	228000	71	426000
6	35000	39	234000	72	432000
7	42000	40	240000	73	438000
8	48000	41	246000	74	444000
9	54000	42	252000	75	450000
10	60000	43	258000	76	556000
11	66000	44	264000	77	452000
12	72000	45	270000	78	468000
13	78000	46	276000	79	474000
14	84000	47	282000	80	480000
15	90000	48	288000	81	486000
16	96000	49	294000	82	492000
17	102000	50	300000	83	498000
18	108000	51	306000	84	504000
19	114000	52	312000	85	510000
20	120000	53	318000	86	516000
21	126000	54	324000	87	522000
22	132000	55	330000	88	528000
23	138000	56	336000	89	534000
24	144000	57	342000	90	540000
25	150000	58	348000	91	546000
26	156000	59	354000	92	552000
27	162000	60	360000	93	558000
28	168000	61	366000	94	564000
29	174000	62	372000	95	570000
30	180000	63	378000	96	576000
31	186000	64	384000	97	582000
32	192000.	65	390000	98	588000
33	198000	66	396000	99	594000
				100	600000

7000		7000		7000	
1	7000	34	238000	67	469000
2	14000	35	245000	68	476000
3	21000	36	252000	69	483000
4	28000	37	259000	70	490000
5	35009	38	266000	71	497000
6	42000	39	273000	72	504000
7	49000	40	280000	73	511000
8	56000	41	287000	74	518000
9	63000	42	294000	75	525000
10	70000	43	301000	76	532000
11	77000	44	308000	77	539000
12	84000	45	315000	78	546000
13	91000	46	322000	79	553000
14	98000	47	329000	80	560000
15	105000	48	336000	81	567000
16	112000	49	343000	82	574000
17	119000	50	350000	83	581000
18	126000	51	357000	84	588000
19	133000	52	364000	85	595000
20	140000	53	371000	86	602000
21	147000	54	378000	87	609000
22	154000	55	385000	88	616000
23	161000	56	392000	89	623000
24	168000	57	399000	90	630000
25	175000	58	406000	91	637000
26	182000	59	413000	92	644000
27	189000	60	420000	93	651000
28	196000	61	427000	94	658000
29	203000	62	434000	95	665000
30	210000	63	441000	96	672000
31	217000	64	448000	97	679000
32	224000	65	455000	98	686000
33	231000	66	462000	99	693000
				100	700000

8000		8000		8000	
1	8000	34	272000	67	536000
2	16000	35	280000	68	544000
3	24000	36	288000	69	552000
4	32000	37	296000	70	560000
5	40000	38	304000	71	568000
6	48000	39	312000	72	576000
7	56000	40	320000	73	584000
8	64000	41	328000	74	592000
9	72000	42	336000	75	600000
10	80000	43	344000	76	608000
11	88000	44	352000	77	616000
12	96000	45	260000	78	624000
13	104000	46	368000	79	632000
14	112000	47	376000	80	640000
15	120000	48	384000	81	648000
16	128000	49	392000	82	656000
17	136000	50	400000	83	664000
18	144000	51	408000	84	672000
19	152000	52	416000	85	680000
20	160000	53	424000	86	688000
21	168000	54	432000	87	696000
22	176000	55	440000	88	704000
23	184000	56	448000	89	712000
24	192000	57	456000	90	720000
25	200000	58	464000	91	728000
26	208000	59	472000	92	736000
27	216000	60	480000	93	744000
28	224000	61	488000	94	752000
29	232000	62	496000	95	760000
30	240000	63	504000	96	768000
31	248000	64	512000	97	776000
32	256000	65	520000	98	784000
33	264000	66	528000	99	792000
				100	800000

9000		9000		9000	
1	9000	34	306000	67	603000
2	18000	35	315000	68	612000
3	27000	36	324000	69	621000
4	35000	37	333000	70	630000
5	45000	38	342000	71	639000
6	54000	39	351000	72	648000
7	63000	40	360000	73	657000
8	72000	41	359000	74	666000
9	81000	42	378000	75	675000
10	90000	43	387000	76	684000
11	99000	44	396000	77	693000
12	108000	45	405000	78	702000
13	117000	46	414000	79	711000
14	126000	47	423000	80	720000
15	135000	48	432000	81	729000
16	144000	49	441000	82	738000
17	153000	50	450000	83	747000
18	162000	51	459000	84	756000
19	171000	52	468000	85	765000
20	180000	53	477000	86	774000
21	189000	54	486000	87	783000
22	198000	55	495000	88	792000
23	207000	56	504000	89	801000
24	216000	57	513000	90	810000
25	225000	58	522000	91	819000
26	234000	59	531000	92	828000
27	243000	60	540000	93	837000
28	252000	61	549000	94	846000
29	261000	62	558000	95	855000
30	270000	63	567000	96	864000
31	279000	64	576000	97	873000
32	288000	65	585000	98	882000
33	297000	66	594000	99	891000
				100	900000

10000		10000		10000	
1	10000	34	340000	67	670000
2	20000	35	350000	68	680000
3	30000	36	360000	69	690000
4	40000	37	370000	70	700000
5	50000	38	380000	71	710000
6	60000	39	390000	72	720000
7	70000	40	400000	73	730000
8	80000	41	410000	74	740000
9	90000	42	420000	75	750000
10	100000	43	430000	76	760000
11	110000	44	440000	77	770000
12	120000	45	450000	78	780000
13	130000	46	460000	79	790000
14	140000	47	470000	80	800000
15	150000	48	480000	81	810000
16	160000	49	490000	82	820000
17	170000	50	500000	83	830000
18	180000	51	510000	84	840000
19	190000	52	520000	85	850000
20	200000	53	530000	85	860000
21	210000	54	540000	87	870000
22	220000	55	550000	88	880000
23	230000	56	560000	89	890000
24	240000	57	570000	90	900000
25	250000	58	580000	91	910000
26	260000	59	590000	92	920000
27	270000	60	600000	93	930000
28	280000	61	610000	94	940000
29	290000	62	620000	95	950000
30	300000	63	630000	96	960000
31	310000	64	640000	97	970000
32	320000	65	650000	98	980000
33	330000	66	660000	99	990000
				100	1000000

BRITISH MUSEUM 30 DEC 60

A SHORT.

TREATISE

OF

Practical Gauging,

SHEWING

A Plain and Eaſy

METHOD

TO ATTAIN

That Uſeful ART.

By *HEBER LANDS*,
Profeſs. *Mathematicks*.

BRITISH MUSEUM
30 DEC 60

De

every
called
into T
nomina
be, 1c
nators
The
mals u
be rea
or 47

Decimal Arithmetick.

THE Fractions in this Arithmetick increaſe by Tens towards an Unit, as do the whole Numbers in Vulgar Arithmetick from an Unit; for an Unit or (1) is divided into Ten equal parts called Primes, or Tenths; every Prime is ſubdivided into Ten equal parts, called Seconds, or Hundreth parts, and every Second into Ten Thirds or Thouſandth parts, &c. the Denominators therefore of all Decimal Fractions, will be, 10, 100, 1000, 10000, &c. Theſe Denominators are rarely expreſſed, but underſtood.

The whole Numbers are ſeparated from the Decimals uſually by a Comma, or Point, as 79, 47, to be read 79 whole Numbers, 4 Primes, 7 Seconds, or 47 Hundreth parts.

1.

ADDITION.

Set whole Numbers under whole Numbers, Primes under Primes, Seconds under Seconds, Thirds under Thirds, &c. then add as if all were whole Numbers.

Example.

Add 7. 5|49. 72|41. 721|7. 04|0. 0096| into one Sum.

```
        7. 5
       49. 72
       41. 721
        7. 04
        0. 0096
     ___________
Sum   105. 9906
     ___________
```

SUBSTRACTION.

Set whole Numbers under whole Numbers, Primes under Primes, Seconds under Seconds, Thirds under Thirds, and ſubtract as if all were whole Numbers.

Example.

From 9. 76. take 5. 4

```
            9. 76
            5. 4
           _______
Remainder   4. 36
           _______
```

BRITISH MUSEUM 30 DEC 60

From 49, 7. take 5, 89

49. 7
5. 89

Remainder 43. 81

MULTIPLICATION.

Multiply whole Numbers and Decimals together as if all were whole Numbers; and cut off from the Product, towards your Right-hand for Decimals, as many Figures, as are the Number of Decimal places, both in the Multiplicand and Multiplier.

Examples.

A Back, or Tun, Length 59, 4, Breadth 42, 5, I would know the Area in Inches.

Multiply the Length by the Breadth, gives the Area of any Square or Oblong.

59. 4
42. 5

---

2 9 7 0
1 1 8 8
2 3 7 6

Area in Inches 2 5 2 4¦50

A Triangle whoſe Baſe is 84, 6. Perpendicular 42, 3 I demand the Content.

Multiply the Baſe by the Perpendicular, and half the Product is the Content.

$$\begin{array}{lrrrr|rr}
 & & & 8 & 4, & 6 & \\
 & & & 4 & 2, & 3 & \\
\hline
 & & & 2 & 5 & 3 & 8 \\
 & & 1 & 6 & 9 & 2 & \\
 & 3 & 3 & 8 & 4 & & \\
\hline
 & 3 & 5 & 7 & 8 & 5 & 8 \\
\text{Content} & 1 & 7 & 8 & 9. & 2 & 9
\end{array}$$

If you have a Back that conſiſts of many Triangles, after you have drawn Diagonal Lines from Angle to Angle, and divided the Back into Triangles, obſerve that the Triangles are leſs by two, and the Diagonals leſs by three, than the Number of Sides in the Circumference of the Figure; the Sum of all the Contents of the Triangles will be the Area of the Back.

Suppoſe the Diameter of a Circle be (1) then the Circumference will be 3. 14159. Prope.

Multiply half the Circumſerence by half the Diameter, the Product is the Area of any Circle.

3, 14159 Whole Circumference.

1, 570795 Half Circumference.

0, 5 Half Diameter.

,7853975 Area of a Circle, whoſe Diameter is a Unit or (1).

To find the Area of a Circle.

Multiply the Square of the Diameter of any Circle by the Area of a Circle, whoſe Diameter is (1) that is 7853975, and the Product is the Area.

A Circle, whoſe Diametor is 32, 5, I would know the Area.

If inſtead of multiplying by 7853975, you do by 7854, the Product will come near enough.

32, 5
32, 5

1625
650
975

1056, 25 Square of the Diameter.
,7854

422500
528125
845000
739375

829.578750 Area of the Circle.

An Ellipſis whoſe Tranverſe, or longeſt Diameter is 82 Inches 5 Primes, and the Conjugate, or ſhorteſt, 23 Inches 2 Primes, I demand the Area?

Multiply the Product of the Diameters, or the Rectangle by 7853975, and you have the Area of the Ellipſis.

82. 5
23. 2
1650
2475
1650
191400
,7854
765600
957000
1531200
1339800
1503,255600 Area of the Ellipſis

The Diameter of a Circle to find the Circumference.

The Diameter of a Circle is 45 Inches 3 Primes, I demand the Circumferenee?

Multiply 3, 14159, by the Diameter of any Circle and the Product is the Circumference.

3, 14159
45, 3

942477
1570795
1256636

142|314027 Circumference.

The Circumference of a Circle given, to find the Diameter.

Let the Circumference be 142 Inches 3 Primes, I would know the Diameter ?

Multiply 0, 3183, by the Circumference of a Circle, and the Product is the Diameter.

0, 3183
1 42, 3

9549
6366
12732
3183

45|29409 Diameter.

DIVISION.

Divide whole Numbers and Decimals together, as if all were whole Numbers; then to diſcover what Name the firſt Figure in the Quotient wil be;

obſerve in what place of the Dividend the Units place of the Diviſor will be found ; of the ſame Name will be the Figure in the Quotient, whether Integer or Decimal, or thus.

Note, That the Decimal places in the Dividend muſt always exceed thoſe in the Diviſor, by placing of Cyphers to the Dividend if it does not exceed the Diviſor ; then for the Decimals in the Quotient, cut off the Difference of Decimals between the Diviſor and Dividend, towards the Right-hand.

Divide 59, 76, by 4, 2

```
       .  . .
4 2) 59, 76 (14, 2
     42
     ---
     177
     168
     ---
      96
      84
     ---
      12
     ---
```

Divide 282, the Inches in a Beer Gallon, by 7854, the Area of the Circle within, when the Area of the Square without is (1)

7854)282,0000(359 Diviſor for the Cylinders in Beer Gallons.
235 62

46380
39270

71100
70686

414

Divide 231 the Inches in a Wine Gallon by 7854, the Area of the Circle within, when the Area of the ſquare without is (1)

.7854)231.0000(294 Diviſor for Cylinders in Wine Gallons.
157 08

73920
70686

32340
31416

924

To find the Area of the Segment of a Circle (ABCD); rhe Diameter (BG,) and the verſed Sine BD being given.

Let (BG Fig. 1ſt) be 314, (BD) 82, I demand the Area of the Segment of the Circle (ABCD.)

From the Center (O) draw (AO, (OC) the half of (BG) will be (AO), BO, or CO) the Radius, or Semi-diameter of the Circle,

From

From the Radius ſubtract (BD,) the Remainder will be (DO.)

314 Diameter of the Circle.

The half is 157 (BG) Radius, or Semi-diameter (OG.)
Subtract (BD) 82

Remains (DO) 75

Figure the Firſt.

To the Sine of 90—00————10,00000
Add the Logarsth. of (DO) 74—1,87506

The Sum is——11,87506

Take the Logarithm of (O) the Radius of the Circle ——— } 2, 19590

The Remain is the Sine Complement
d. m.
of the Angle (BOC) 61—28 } 9. 67916

deg. min.
Which Angle being doubled, gives the Angle (AOC)——— } 122. 56.

Or 122 Degrees, and 93 Hundreth parts of a Degree.

The Area of the whole Circle found by the Rule in the Multiplication of Decimals, is, or will be 77437, which multiplied by the Angle (AOC) 122,

93

93 produces 9519330, then this Product divided by 360 Degrees, the Quotient will be 264425, the Area of the Sector (AOCB); from the Diameter (BG) 314 ſubtract (BD) 82, the Remainder is (DG) 232; which multiplied by (BD) 82, the Product is 19024, whoſe ſquare Root is (AD) or (DC) 137.9; which multiplied by (DO) 75, the Product is the Area of the Triangle (AOC 10342, 5, which ſubtracted from the Area of the Sector (AOCB) 26442, 5, the Remainder is the Area of the Segment of a Circle (ADCB 16100, which was required.

* * *

The RULE *of* THREE.

MULTIPLY your ſecond and third Numbers together, as in the Multiplication of Decimals, divide the Product by your firſt Number, as in Diviſion of Decimals, and the Quotient is the Anſwer.

Example.

To find the Area of the Segment of an Ellipſis cut parallel to the longeſt Diameter.

Suppoſe the Tranverſe Diameter (RS, Fig. 2d) to be 78. 3, and Conjugate Diameter (BG) 31, 4, let (XY) be the Line parallel, and (BD) the verſed Sine of the Ellipſis Segment be 8. 2, I demand the Area of the Ellipſe (BXDY.)

Let a Circle (BAGC) be inſcribed in the Ellipſe, whoſe Diameaer is the Conjugate Diameter of the Ellipſis, then 'twill be as (BG) (31, 4. the Conjugate Diameter of the Ellipſe) to (RS (78.) the Tranſverſe Diameter of the Ellipſe. So is the Area of the Segment of the Circle (BADC) 161 Inches found by the preceding Rule to the Area of the Segment of the Ellipſe (BXDY.)

Inches. Inches. Inches.
As 31, 4, to 78, 3, ſo is 161, 0, Area of the Segment of the Circle (BADC.)

```
         161, 0
          78, 3
        -------
          4830
        12880
       11270
       -------
        .....
31, 4) 12606,30. (401 The Area of the Segment
       1256                  of the Ellipſis.
      ------
        463
        314
      ------
        1490  401 Inches, and 4 tenth parts of
        1256        an Inch.
      ------
         234
      ------
```

To ſind the Area of the Segment of an Ellipſe, cut parallel to the Conjugate, or ſhorteſt Diameter.

Admit (BG, Fig. 3d) the Tranverſe Diameter of the Ellipſis be 314, and the Conjugate Diameter (RS) 121, 7. Now, if a Line (XY) be drawn parallel to the Conjugate Diameter (RS) and (BD) 8, 2, the verſed Sine of the Ellipſis be given, I would know the Area of the Segment of the Ellipſis (BRGS ?)

Let the Circle (BAGC) circumſcribe the Ellipſis (BRGS.)

The

The Third Figure.

Then it will be as (BG) the Tranſverſe or longeſt Diameter of the Ellips to (RS) the Conjugate or Shorteſt ; ſo is (BADC) the Area of the Segment of the Circle circumſcribing the Segment of the Ellipſis to (BXDY) the Segment of the Ellipſis.

The Segment of the Circle is 16100 Inches.

As 314 to 121, 7 ; ſo is 16100 the Circles Segment.

```
        16100
         121,7
       ---------
        112700
        161
       322
      161
  -------------
        .....
314) 19593700 (6240,0 Area of the Segment of
      1884                 the Ellipſis.
     ------
       753
       628
      -----
       1257
       1526
      ------
        100
```

To find the Content of a Parabola.

Suppoſe (AC) the double Ordinate, to be 82, 5, and (BD) the Axis to be 32, 7, I would know the Area of the Parabola.

Multiply the double Ordinate (AC) 82, 5, by the Axe (BD) 32, 7, and reſerve the Product, then it will be as 3 is to 2, ſo is the ſaid Product : to the Area.

Figure the Fourth.

82, 5 double Ordinate.
32, 7 Axis.

5775
1650
2475

2697, 75

As 3 is to 2, ſo is 2697, 75
2

3) 5395, 50 (
1798, 50 Area of the Parabola.

The Diameter of a Circle being given to find the Circumference.

As 113 is to 355, ſo is the Diameter of any Circle to its Circumference.

As

```
As 113 to 355, ſo is 65
                    355
                   ----
                    325
                   325
                  195
                 -----
                   ...
          113) 23075 (204 Circumference.
                00475
                -----
                   23
```

The Circumference being given to find the Diameter.

As 355, to 113, ſo is the Circumference to the Diameter.

```
As 355, to 113 ſo is 204
                     113
                    ----
                     612
                    204
                   204
                  -----
                       .
         355) 23052 (64 Diameter.
               1752
               ----
                232
```

DEFI-

DEFINITIONS.

1. A Cube is a Solid, contained under ſix equal Square.

2. A Parallelopipedon is that whoſe oppoſite ſides are Parallel and Equal.

3. A Cylinder is that whoſe Diameters are all equal (as the Rowling-Stone of a Garden) and is made by the Rotation of a Right-Angled Parallelogram about one ſide remaining fixed, till it end where it began.

4. A Cone, is made by the Rotation of a Right-Angled Plain Triangle about its Baſe, or Perpendicular (remaining fixed) till it end where it began.

5. A Square Pyramid, from a Square at the Baſe, haſtens to a Point at the Top or Vertex: Now a Right-Line, every where applied from the Vertex to the Limits of the Square, at the Bottom will touch the Superficies of this Pyramid.

6. A Parabolick Conoid is made up of an Infinite Number of Circles, whoſe Area's are in Arithmetick Progreſſion. And is made by Rotation of a Semi-parabola about its Axe, remaining fixed till it end where it began.

7. An Hyperbolick Conoid is made by the Rotation of a Semi-Hyperbola about its Axe, remaining fixed till it end where it began.

8. A Globe is made by the Rotation of a Semi-Circle about its Axe, remaining fixed till it end where it began.

9. A Spheroid is made by the Rotation of a Semi-Ellipſe about its Axe.

10. An Elliptick Cone from an Ellipſis at the Baſe haſtens to the Top, and a Right-Line every where applied from the Vertex to the Curve of the Ellip-below, will touch the Sufices of the Elliptick Cone.

11. If a Parabola be turn'd about its double Ordinate, remaining fixed till it end where it began, this Solid is called a Parabolick Spindle.

12. If a Cone, Pyramid, or Conoid be cut by a Plain parallel to the Baſe, that which remains below is the Fruſtum of a Cone, *&c.* or if a Spheroid, or Parabolick Spindle be cut by two Plains perpendicular to the Axe, and equidiſtant from the Poles, the Middle that remains is called a Fruſtum, and repreſents a Cask.

If a Globe be any wiſe cut off by a Plain, and the Plain is a Circle, the leaſt part I call the Fruſtum of a Globe.

GAUGING.

Problem the Firſt.

To find the Content of a Cube or Dye.

MULTIPLY the Side of the Cube by it ſelf, and multiply the Product again by the ſide of the Cube; then divide by 282 the Inches in a Beer Gallon for Beer Gallons, and by 231 the Inches in a Wine for Wine.

Example.

A Cube each Side is 79 Inches, I would know the Solid Content in Beer and Wine Gallons.

```
   79
   79
 ------
  711
 553
 ------
 6241
   79
 ------
 56169
43687
 ------
493039 Cont.
 ------ in Inch.
```

```
          ....
282) 493039 (1748 Beer Gall
       2110
        1363
         2359
      ---------
Remains 103 Cubical Inches.
          ....
231) 493039 (2134 Wine Gall
        310
        793
        1009
      ---------
Rem. 85 Cubical Inches.
```

* * *

Problem the Second.

To find the Content of a Parallelopepid

MULTIPLY the Length by the Bread and the Product by the Depth, and th divide by 282 for Beer Gallons, and by 231 Wine.

Example.

A Parallelopipedon, whoſe Length is 95 Inch Breadth 62 Inches, and the Depth 23 Inches would know the Content in Beer and Wine Gallo

```
          95
          62
        ------
         190
        570
        ------
        5890
          23
        ------
       17670
      11780
      -------
       ....           Content in
282)  135470 (480  Beer Gallons.
        2267
      ------
         110  Inches.
      ------
         ...          Content in
231)  135470 (586  Wine Gallons.
         1997
          1490
      -------
         104  Inches.
      -------
```

* * *

Problem the Third.

To find the Content of a Cylinder.

SQUARE the Diameter (or multiply it by it it ſelf) multiply the Product by the Height, then divide by 359 for Beer Gallons, and by 294 for Wine.

A

Example

A Cylinder, whoſe Diameter is 65 Inches, and the Depth 54 Inches, I would know the Content in Beer and Wine Gallons.

Figure the Fifth.

(ABC) is Cylinder, (HI) is the Altitude (AB) or (CD) the Diameter.

```
              65
              65
         ---------
             325
            350
         ---------
            4225
              54
         ---------
           16900
          21125
         ---------
          227150
         ---------
             ...
    359) 228150 (635 Content in Beer Gallons
           1275
           1980
         ---------
Remainer    195
         ---------
             ...
    294) 227150 (776 Content in Beer Gallo
           2235
           1770
         ---------
              6
         =========
```

Probl

* * *

Problem the Fourth.

To find the Content of a Cone.

SQUARE she Diameter, and multiply the Product by the Height; then divide by the Triple of the Diviſors of the Cylinder which are 1077 for Beer Gallons, and by 882 for Wine.

Example.

A Cone the Diameter is 62 Inches, and the Height 112 Inches, I would know the Content in Beer and Ale Gallons?

Figure the Sixth.

(AOB) the whole Cone, (ABCD) a Fruſtum of a Cone, (O) Vertex, (OP) is the Altitude, and (AB) the Diameter.

62
62

124
372

3844
112

7688
3844
3844

1077) 430528 (399 Content in Beer Gallons.
10742
10498

Remainer 805

882) 430528 (488 Content in Wine Gallons.
7772
7168

Remain. 112

Problem the Fifth.

To find the Content of a ſquare Pyramid.

SQUARE the Side, and multiply the Product by the Height; then divide by 846 for Beer Gallons, and 693 for Wine Gallons.

Example.

A Sqnare Pyramid, the Side is 75 Inches, and the Height 125 Inches. I would know the Content in Beer and Wine Gallons.

Figure the Seventh.

(ABCDO) is a whole ſquare Pyramid, (ABCDFGHI) is the Fruſtum of a Pyramid, (BC) the Side, and (PO) the Altitude.

```
            75
            75
        ---------
           375
          525
        ---------
         .5625
           125
        ---------
         28125
        11250
        5625
        ---------
           . . .
 846) 703125 (831 Content in Beer Gallons.
        2632
          945
        ---------
 Remain.   99
        ---------
          . . . .
 693) 703125 (1014 Content in Wine Gall.
        1012
         3195
        ---------
 Remain.  423
```

Problem the Sixth.

To find the Content of a Parabolick Conoid.

SQUARE the Diameter, multiply the Product by the Height, then divide by 718 for Beer Gallons, and by 588 for Wine Gallons.

Example.

Example.

A Parabolick Conoid, the Diameter is 65 Inches; and the Height 95 Inches; I would know the Content in Beer and Wine Gallons?

Figure the Eighth.

(ABC) is the whole Parabolick Conoid, (ACED) is the lower Fruſtum of a Parabolick Conoid, (AC) the Diameter, and (BF) the Height.

```
          65
          65
       ------
         325
        390
       ------
        4225
          95
       ------
       21125
      38025
      ------
         ...
718)  401375 (559 Content in Beer Gall.
       4237
        6475
       ------
          13
       ------
         ...
588)  401375 (682 Content in Wine Gall.
       4857
        1535
       ------
         359
       ------
```

Problem the Seventh.

To find the Content of an Hyperbolick Conoid.

SQUARE the Diameter, multiply the Product by the Height; then divide by 862 for Beer Gallons, and by 706 for Wine Gallons.

Example.

An Hyperbolick Conoid, the Diameter is 61 Inches, and the Height 56 Inches; I would know the Content in Beer and Wine Gallons?

Figure the Ninth.

(ABC) is an Hyperbolick Conoid, (AC) the Diameter, and (BD) the Height.

61
61

61
366

3721
56

22326
18605

. . .
862) 208376 (241 Content in Beer Gall.
3597
1496

634

. . .
706) 208376 (295 Content in Wine Gall.
6717
3636

106

Problem the Eighth.

To find the Content of a Globe.

CUBE the Globe's Diameter (or multiply the Diameter of the Globe by it ſelf, and the Product again multiply by the Globe's Diameter) then

then divide by 538 for Beer Gallons, and 441 for Wine Gallons.

A Globe whoſe Diameter is 75 Inches, I would know the Content in Beer and Wine Gallons?

```
          75
          75
       ------
         375
        525
       ------
        5625
          75
       ------
       28125
      39375
      -------
        ...
538) 421875 (784 Content in Beer Gall.
      4527
       2235
       ------
         83
       ------
        ...
441) 421875 (956 Content in Wine Gall.
      2497
       2925
      ------
        279
      ------
```

Problem the Ninth.

To find the Content of a Whole Spheroid.

MULTIPLY the ſquare of the Conjugate (or ſhorteſt Diameter) by the Tranſverſe (or longeſt Diameter) then divide by 583 for Beer Gallons, and by 441 for Wine Gallons.

A Spheroid, the Conjugate Diameter is 74 Inches, and the Tranſverſe is 125 Inches; I would know the Content in Beer and Wine Gallons?

Figure the Tenth.

(ACBD) is a whole Spheroid, (AB) the Conjugate Diameter, (CD) the Tranſverſe Diameter, (GHEF) is the middle Fruſtum cut parallel to the Conjugate Diameter.

74
74

296
518

5476
125

27380
10952
5476

...
538) 684500 (1272 Content in Beer Gall.
1465
3890
1240

164

....
441) 684500 (1552 Content in Wine Gall.
2435
2300
950

68

Problem the Tenth.

To find the Content of an upright Elliptick Cone.

MULTIPLY the Bottom Diameters together, and the Product by the Height, then divide by 1077 for Beer Gallons, and by 882 for Wide Gallons.

Example.

An Elliptick Cone, the longeſt Diameter at the Bottom AC is 95 Inches, and the ſhorteſt FI is 64 Inches, and the Height OB is 125 Inches; I would know the Content in Beer and Wine Gallons?

Figure the Eleventh.

(ABC) the whole Cone, (ACDE) the Fruſtum, (ED) the greater Diameter at Top, (LK) the leſſer at Top, (AC) the greater Diameter at Bottom, (FI) the leſſer at Bottom.

```
                95
                64
             ------
               380
              570
             ------
              6080
               123
             ------
             18240
            12160
            6080
             ------
               . . .
   1077) 747840 (694 Content in Beer Gall.
          10164
            4710
             ------
               402
             ------
               . . .
     882) 747840 (847 Content in Wine Gall.
           4224
             6960
             ------
               786
             ------
```

Problem the Eleventh.

To find the Content of a Cask, taken for the Middle Fruſtum of a Parabolick Spindle.

TO twice the Square of the Bung Diameter, add once the Square of the Head Diameter; from the Sum ſubtract two fifths of the Square of the Difference between the Bung and Head Diameters, multiply

multiply the Remainder by the Length. Then divide by 1077 for Beer Gallons, and by 882 for Wine Gallons.

Example.

		Inches.	
A Cask	Bung	31.7	I would know the Content in Beer and Wine Gallons.
	Head	24.3	
	Length	49.3	

31.7
31.7
2219
317
951
1004.89 ſquare
2 Bung
2009.78
590.49
2600.27
21.90
2578.37 Rem.

24.3
24.3
729
972
486
590.49 ſquare Head
31.7
24.3
7.4
7.4
296
518
54,76 Square of the Difference of the Diameters

21.90 Is two fifths of the ſame.

Rem. 2578.37
49.3
773511
2320533
1031348
127113-641

1077)

1077) 127113 (118 Content in Beer Gallons.

1941
1077

8643
8616

27

882) 127113 (145 Content in Wine Gallons.
882

3891
3528

3633
3528

105

Figure the Twelfth.

(BD) the double Ordinate, (AC) the double Axe, (ABCD) the whole parabolick Spindle, (EFGH) the middle Fruſtum.

Problem the Twelfth.

To find the Content of an Elliptick Conoid

MULTIPLY the bottom Diameters together the Product by the Height; then divide b 564 for Beer Gallons, and by 462 for Wine Gallon

Exampl

Example.

An Elliptick Conoid, the longeſt Diameter at bottom is 65 Inches, the ſhorteſt 35 Inches, and the Height 112 Inches; I would know the Content in Beer and Wine Gallons..

```
             65
             35
        ---------
            325
           195
        ---------
           2275
            112
        ---------
          4550
         2275
        2275
        ---------
         ....
564) 254800 (451 Content in Beer Gallons.
      2920
       1000
        ---------
           436
        =========
           ...
462) 254800 (551 Content in Wine Gallons.
      2380
         700
        ---------
         238
        =========
```

Problem the Thirteenth.

To find the Content of the Fruſtum of a Cone cut parallel to the Baſe.

TO the Triple Product of the Diameters, add the Square of their Difference; multiply the Sum by the Height, and divide by 1077 for Beer Gallons, and by 882 for Wine Gallons.

Example.

The Fruſtum of a Cone the greateſt Diameter is
Inch. *Inch.*
75.1. the leaſt Diameter is 62.5 and the Height or
Inch.
Depth is 42.2. I would know the Content in Beer and Wine Gallons.

Figure

Figure the Sixth.

```
                                                          Cont. in
       75,1            75,1                             .. Beer G.
       62,5            62,5       1077) 600928 (557
     --------        --------             6242
       3755            12,6               8578
      1502             12,6             --------
     4506            --------             1039
    --------            756             --------
    4693,75            252
          3           126
    --------         --------
   14081,25          158,76
     158,76 Square difference.
   --------
   14240,01                                              Cont. in
       42,2                                           ... Wine G.
   --------                        882) 600928 (681
    2848002                               7172
   2848002                                1168
  5696004                               --------
  --------                                 286
  600928,422                            --------
```

Problem the Fourteenth.

To find the Content of the Fruſtum of a Square Pyramid cut parallel to the Baſe.

TO the Triple Product of the Diameters add the Square of their Difference, multiply the Sum by the Depth or Height; then divide by 846. for Beer Gallons, and by 693 for Wine Gallons.

Example.

Example.

The Fruſtum of a Square Pyramid the greateſt Side is 62.1 *Inch.*, the leaſt Side is 51.5 *Inch.*, and the Depth is 44.2 *Inch.*, I would know the Content in Beer and Wine Gallons?

Figure the Seventh.

```
    62.1      62.1             . . .        Content in
    51.5      51.5   846) 429041 (507 Beer Gal.
   ______    ______         6041
    3105      10.6           119
    621       10.6
   3105      _______
  _______     63.6          _______
  3198.15    1060
        3    _______
  _______    122.36
  9594.45
   112.36
  _______
                            . : :       Content in
  9706.81            693) 429041 (619 W. Gal.
     44.2                   1324
  ________                  6311
  1941362                 _______
 3882724                      74
3882724                   _______
_________
429041002
_________
```

Problem the Fifteenth.

To find the Content of the Fruſtum of a Parabolick Conoid cut parallel to the Baſe.

TO the Square of the Top Diameter, add the Square of the bottom Diameter, multiply the Sum by the Depth; then divide by 718 for Beer Gallons, and by 588 for Wine.

Example.

A Fruſtum of a Parabolick Conoid; the Top Diameter is *Inch.* 79.3. the Bottom Diameter is *Inch.* 91.2. and the Depth is *Inch.* 54.3. I would know the Content in Beer and Wine Gallons?

Figure

Figure the Eighth.

79,3 91,2
79,3 91,2

2379 1824
7137 912
5551 8208

Square Top. 6288,49 .... Content i
Square Bot. 8317,44 588) 793101 (1348 W.G
1460593 2051
54,3 2870
5181

4381779 477
5842372
7302965

....
718) 793101,999 (1104 Content in Beer Gall
751
3301

429

Problem the Sixteenth.

To find the Content of the lower Fruſtum o a Conoid, having an Elliptick Baſe.

TO the Product of the Top Diameters, add th Product of the Bottom Diameters, multipl the Sum by the Depth; then divide by 718 for Bee Gallons, and 588 for Wine Gallons. *Exampl*

Example.

The Fruſtum of a Conoid having an Elliptick Baſe, the greateſt Diameter at Top is 72 Inches, the leaſt Diameter at Top is 45 Inch. the greateſt Diameter at Botton 84 Inch. the leaſt Diameter a Bottom 55 Inches, and the Depth is 45 Inches. I would know the Content in Beer and Wine Gallons ?

Figure the Eighth.

```
    72                                  . . .        Cont. in
    45                   718)  353700  (492  Beer Gall.
   ———                           6650
   360                           1880
  288                          ————————
  ————                            444
  3240 Product.                ————————
  4620 Top Dia-    84
  ———— meters.     55
  7860            ———
    45            420                 . . .        Cont. in
  ————            420      588)  353700  (601 W. G.
 39300          ———— Prod.        00900      ————
 31440          4620 of the  ————————
 ——————         ———— bot.          312
353700               Diam.    ————————
```

Problem the Seventeenth.

To find the Content of a Cask taken as the Middle Fruſtum of a Spheroid.

TO twice the Square of the Bung Diameter, add once the Square of the Head, multiply the Sum

Sum by the Length, and divide by 1077 for Be
Gallons, and by 882 for Wine Gallons.

Example.

		Inch.	
A Cask	Bung Diameter	23	I would know th
	Head Diameter	21	Content in Beer an
	Length ———	27	Wine Gallons.

Figure the Ninth.

```
   23      21
   23      21
 ------   -----
   69      21
  46      42
 ------  -------
  529     441
  529                     ...
  441          1077) 40473 (37 Content in Be
 -------              8163          Gallons.
 1499                ------
   27                 624
 -------             ------
 10493
 2998                      ..
 -------        882) 40473 (45 Content in Wi
 40473                5193         Gallons.
                     ------
                      783
                     ------
```

Proble

Problem the Eighteenth.

To find the Content of the Fruſtum of an upright Elliptick Cone cut parallel to the Baſe.

MULTIPLY the Rectangle of the Top Diameters by the Rectangle of the Bottom Diameters, and extract the Square Root, which add to the Sum of the ſaid Rectangles, multiply the laſt Sum by the Depth; then divide by 1077 for Beer Gallons, and by 882 for Wine.

Example.

		Inches.	
The Fruſtum of an Elliptick Cone.	Greateſt Diam. at Top	75	I would know the Content in Beer and Wine Gall.
	Leaſt Diam. at Top	40	
	Greateſt Diam. at Bot.	84	
	Leaſt Diam. at Bot.	50	
	Depth	43	

```
       84      75              4200
       50      40              3000
    -------  -------           3549
     4200    3000              ----
     3000                     10749
    -------                      43
     0000                     -----
    0000                      32247
   0000                      42996
  12600                      -----
  -------                      ...          Content in
  12600000            1077) 462207 (429 Beer Gall.
  -------                     3140
                               9867
                              -----
                                174
                              -----
     . . . .            Square
     12600000 (3549 Root.
     9
  -----------                   ...
  65 ) 360              882) 462207 (524 Wine G
  704 ) 3500                    2120
  7089 ) 68400                   3567
     -------                   -----
        4599                      39
     -------                   -----
```

Problem the Nineteenth.

To find the Content of the Frustum of a Globe

TO three times the Square of the Fruſtums Diameter, add four times the Square of th Height, multiply the Sum by the Height; then divide by 2154 for Beer Gallons, and by 1764 fo Wine Gallons.

Exampl

Example.

A Fruſtum of a Globe the Diamete ris 75 Inches, and the Height 31 Inches, I would know the Content in Beer and Wine Gallons.

75
75

375
525

5625
3

16875
3844

20719
31

20719
62157

... Cont. in
2154) 642289 (298 Beer G.
4308

21148
19386

17629
17232

397

31
31

31
93

961
4

3844

... Content in
1764) 642289 (364 W. G.
5292

11308
10584

7249
7056

193

Problem the Twentieth.

To find the Content of a Cask, one En being cut off parallel to the Bung Dia-meter.

TO twice the Square of the Bung Diamete add once the Square of the Top, multiply th Sum by the Diſtance from the Top.

To twice the Square of the Bung Diameter, ad once the Square of the Head, multiply the Sum b the Diſtance from the bottom.

Add theſe two Products together, divide the Su by 1077 for Beer Gallons, and by 882 for Win Gallons.

Figure the Thirteenth.

Example.

Admit
Inches.
AB) the Bung Diameter-40.8
CD) the Top Diameter--39.4
EF) the Bot. or Head Dia.35.3
FG) the diſt. from Bot.—30.9
HI) the diſt. from Top.—11.0

I would kno the *Conte* in Beer an Wine Ga lons ?

401

```
    40.8                39.4            35.3
    40.8                39.4            35.3
   ------              ------          ------
    3264                1576            1059
   16320                3546            1765
  --------             1182            1059
  1664.64             --------        --------
  1664.64              1552.36         1246.09
  1552.36             --------        --------
  --------
  4881.64              1664.64
       11              1664.64
  --------             1246.09
   488164             --------
  488164               4575.37
 ----------              30.9
  53698.04            ---------
 141378.933            4117833
 ----------           13726110
 195076.973           ----------
 ----------           141378.933
                      ----------

        ∴
1077) 195076 (181 Content in Beer Gallons.
      1077
     ------
       8737                  ...      Content in
       8616       882) 195076 (221 Wine G.
     ------             1764
        1216           ------
        1077             1867
     ------              1764
         139            ------
                          1036
                           882
                         ------
                           154
                         ------
```

D.	.0	.1	.2	.25	.3	.4
1	0.0028	0.0034	0.0040	0.0044	0.0047	0.0055
2	0.0111	0.0123	0.0135	0.0140	0.0147	0.0160
3	0.0251	0.0268	0.0285	0.0294	0.0303	0.0322
4	0.0446	0.0468	0.0491	0.0503	0.0515	0.0539
5	0.0696	0.0724	0.0753	0.0767	0.0782	0.0812
6	0.1003	0.1036	0.1071	0.1087	0.1105	0.1141
7	0.1365	0.1404	1.1444	0.1463	0.1484	0.1525
8	0.1782	0.1827	0.1873	0.1895	0.1919	0.1965
9	0.2256	0.2306	0.2357	0.2383	0.2409	0.2461
10	0.2785	0.2841	0.2898	0.2926	0.2955	0.3012
11	0.3370	0.3432	0.3495	0.3524	0.3556	0.3622
12	0.4011	0.4078	0.4145	0.4179	0.4214	0.4282
13	0.4707	0.4780	0.4853	0.4889	0.4927	0.5001
14	0.5455	0.5537	0.5616	0.5655	0.5695	0.5775
15	0.6266	0.6350	0.6435	0.6477	0.6520	0.6605
16	0.7130	0.7215	0.7309	0.7354	0.7400	0.7491
17	0.8049	0.8144	0.8239	0.8287	0.8336	0.8432
18	0.9024	0.9124	0.9225	0.9276	0.9327	0.9428
19	1.0054	1.0160	1.0267	1.0320	1.0374	1.0483
20	1.1142	1.1252	1.1364	1.1420	1.1477	1.1590
21	1.2282	1.2400	1.2517	1.2576	1.2636	1.2755
22	1.3480	1.3603	1.3726	1.3788	1.3850	1.3975
23	1.4733	1.4862	1.4991	1.5055	1.5120	1.5250
24	1.6042	1.6176	1.6311	1.5377	1.6446	1.6581
25	1.7407	1.7546	1.7686	1.7758	1.7827	1.7998
26	1.8827	1.8972	1.9118	1.9191	1.9264	1.9411
27	2.0303	2.0454	2.0605	2.0681	2.0755	2.0909
28	2.1835	2.1991	2.2145	2.2226	2.2306	2.2464
29	2.3423	2.3585	2.3747	2.3828	2.3910	2.4073
30	2.5063	2.5233	2.5401	2.5485	2.5570	2.5739
31	2.6765	2.6938	2.7131	2.7198	2.7285	2.7460
32	2.8516	2.8698	2.8877	2.8967	2.9057	2.9237
33	3.0330	3.0514	3.0698	3.0792	3.0884	3.1069
34	3.2196	3.2385	3.2576	3.2672	3.2766	7.2958
35	3.4117	3.4313	3.4509	3.4608	3.4705	3.4902

D.	.5	.6	.7	.75	.8	.9
1	0.0063	0.0071	0.0089	0.0085	0.0090	0.0131
2	0.0174	0.0188	0.0203	0.0210	0.0218	0.0234
3	0.0341	0.0361	0.0381	0.0391	0.0402	0.0424
4	0.0564	0.0589	0.0615	0.0628	0.0642	0.0669
5	0.0842	0.0873	0.0905	0.0920	0.0930	0.0969
6	0.1177	0.1213	0.1250	0.1269	0.1288	0.1326
7	0.1567	0.1609	0.1651	0.1672	0.1695	0.1738
8	0.2012	0.2060	0.2108	0.2132	0.2157	0.2206
9	0.2514	0.2567	0.2624	0.2647	0.2675	0.2730
10	0.3071	0.3129	0.3189	0.3218	0.3249	0.3309
11	0.3683	0.3749	0.3814	0.3845	0.3879	0.3945
12	0.4352	0.4442	0.4492	0.4527	0.4593	0.4635
13	0.5076	0.5151	0.5227	0.5261	0.5304	0.5381
14	0.5856	0.5937	0.6018	0.6059	0.6100	0.6181
15	0.6691	0.6778	0.6865	0.6900	0.6953	0.7041
16	0.7582	0.7675	0.7767	0.7813	0.7301	0.7955
17	0.8529	0.8627	0.872	0.8774	0.8824	0.8924
18	0.9532	0.9635	0.9739	0.9791	0.984.	0.9949
19	1.0590	1.0699	1.0805	1.0863	1.0915	1.1029
20	1.1691	1.1811	1.1934	1.1991	1.2049	1.2160
21	1.2874	1.2994	1.3115	1.3175	1.3230	1.3358
22	1.4100	1.4225	1.4351	1.4414	1.4478	1.4605
23	1.5381	1.5512	1.5644	1.5709	1.5776	1.5509
24	1.6718	1.6854	1.6992	1.7060	1.7129	1.7263
25	1.8110	1.8242	1.8395	1.8467	1.8539	1.8683
26	1.9558	1.9706	1.9855	1.9929	2.0004	2.0153
27	2.1062	2.1216	2.1370	2.1447	2.1524	2.1679
28	2.2622	2.2781	2.2941	2.3020	2.3101	2.3361
29	2.4237	2.4432	2.4567	2.4650	2.4733	2.4899
30	2.5908	2.6079	2.6249	2.6335	2.6421	2.6592
31	2.7635	2.7811	2.7987	2.8076	2.8164	2.8341
32	2.9418	2.9599	2.9781	2.9876	2.9963	3.0146
33	3.1252	3.1443	3.1630	3.1725	3.1818	3.2007
34	3.3150	3.3341	3.3535	3.3633	3.3729	3.3923
35	3.5097	3.5299	3.5496	3.5592	3.5695	3.5895

D.	.0	.1	.2	.25	.3	.4
36	3.6095	3.6295	3.6497	3.6599	3.6699	3.6901
37	3.8128	3.8234	3.8541	3.8646	3.8747	3.895
38	4.0217	4.0429	4.0641	4.0749	4.0854	4.106
39	4.2361	4.2579	4.2797	4.2907	4.3016	4.323
40	4.4563	4.4785	4.2008	4.5121	4.5233	4.545
41	4.6818	4.7046	4.7275	4.7390	4.7505	4.773
42	4.9129	4.9363	4.9598	4.9715	4.5834	4.006
43	5.1496	5.1736	5.1977	5.2099	5.2218	5.245
44	5.3920	5.4165	5.4411	5.4534	5.4657	5.490
45	5.6303	5.6649	5.6901	5.7026	5.7153	5.740
46	5.8933	5.9189	5.9446	5.9575	5.9704	5.996
47	6.1523	6.1785	6.2048	6.2179	6.2311	6.25
48	6.4169	6.4436	6.4705	6.4839	6.4973	6.524
49	6.6878	6.7143	6.7417	6.7554	6.7692	6.796
50	6.1628	6.9906	7.0986	7.0325	7.0466	7.074
51	7.2440	7.2725	7.3010	7.3152	7.3295	7.358
52	7.5309	7.5599	7.5890	7.6034	7.6181	7.64
53	7.8233	7.8529	7.8825	7.8973	7.9122	7.941
54	8.1214	8.1515	8.1816	8.1967	8.2118	8.242
55	8.4249	8.4556	8.4863	8.5016	8.5171	8.547
56	8.7341	8.7653	8.7966	8.8122	8.8279	8.85
57	9.0488	9.0806	9.1124	9.1283	9.1443	9.176
58	9.3699	9.4014	9.4338	9.4500	9.4662	9.498
59	9.6949	9.7278	9.8608	9.7770	9.7938	9.826
60	10.0254	10.0508	10.0033	10.1100	10.1269	10.160
61	10.3634	10.3974	10.4314	10.4484	10.4655	10.49
62	10.7059	10.7405	10.7751	10.7924	10.8098	10.844
63	11.0541	11.0892	11.1245	11.1420	11.1596	11.194
64	11.4078	11.4434	11.4792	11.4970	11.5150	11.550
65	11.7670	11.8033	11.8396	11.8577	11.8759	11.912
66	12.1319	12.1687	12.2055	12.2239	12.2424	12.279
67	12.5023	12.5397	12.5771	12.5958	12.6145	12.65
68	12.8783	12.9162	12.9542	12.9731	12.9921	13.030
69	13.2599	13.2983	13.3368	13.3561	13.3754	13.414
70	13.6470	13.6860	13.7251	13.7446	13.7642	13.803

D.	.5	.6	.7	.75	.8	.9
6	3.7104	3.7308	3.7512	3.7616	3.7717	3.7922
7	3.9165	3.9375	3.9584	3.9690	3.9795	4.0005
8	4.1282	4.1497	4.1712	4.1820	4.1928	4.2144
9	4.3456	4.3676	4.3897	4.4008	4.4117	4.4339
0	4.5683	4.5908	4.6135	4.6250	4.6362	4.6550
1	4.7966	4 8198	4.8430	4 8546	4.8662	4.8895
2	5.0306	5.0543	5.0780	5.0901	5.1019	5.1257
3	5.2601	5.2944	5.3187	5.3308	5.3430	5.3675
4	5.5152	5.5400	5.5640	5.5773	5.5898	5.6148
5	5.7659	5.7912	5.8167	5.8293	5 8421	5.8427
6	6.0221	6.0480	6.0740	6.0870	6.1000	6.1261
7	6.2836	6.3104	6.3369	6.3502	6.3635	6.3901
8	6.5513	6.5783	6.6054	6.6198	6.6325	6.6598
9	6.8242	6.8518	6.8794	6.8932	6.9072	6.9349
0	7.1027	7.1309	7.1591	7.1731	7.1873	7.2150
1	7.3868	7.4155	7.4443	7.4586	7.4731	7.5020
2	7.6764	7.7757	7.7350	7.7497	7.7644	7.7938
3	7.9717	8.0015	8.0314	8.0463	8.0612	8.0912
4	8.2724	8.3028	8.3333	8.3485	8.3658	8.3943
5	8.5788	8.6097	8.6407	8.6562	8.6718	8,7029
6	8.8907	8.9222	8.9538	8.9695	8.9854	9.0171
7	9.2082	9.2403	9.2724	9.2884	9.3046	9.3368
8	9.5313	9.5639	9.5966	9.6129	9.6293	9.6621
9	9.8600	9.8931	9.9263	9.9429	9.9596	9.9930
0	10.1042	10.2279	10.2617	10.2785	10.2955	10.3249
1	10.5339	10.5682	10.6026	10.5197	10.6370	10.6714
2	10.8793	10.9141	10.9490	10.9665	10.9840	11.0190
3	11.2302	11.2656	11.3011	11.3188	11.3366	11.3721
4	11.5867	11.6227	11.6587	11.6761	11.6947	11.7309
5	11.9488	11.9853	12.0219	12 0401	12.0585	12.0952
6	12.3164	12.3535	12.3906	12.4091	12.4278	12.4650
7	12.6896	12.7272	12.7649	12.7837	12.8027	12.8405
8	13.0584	13.1066	13.1448	13.1639	13.1831	13.2215
9	13.4527	13.4915	13.5303	13.5497	13.5691	13.6085
0	13.8426	13 8819	13.9213	13.9410	13.9607	13.0004

D.	.0	.1	.2	.25	.3	.4
71	14.039	14.0793	14.1189	14.1387	14.1586	14.198
72	14.4 0	14.4781	14.5183	14.5384	14.5585	14.598
73	14.8413	14.8825	14.9232	14.9436	14.9640	15.00
74	15.2512	15.2925	15.3338	15.3344	15.3751	15.416
75	15.6662	15.7080	15.7499	15.7708	15.7911	15.83
76	16.0367	16.1291	16.1715	16.1927	16.2104	16.25
77	16.5125	16.5558	16.5988	16.6202	16.6418	16.68
78	16.9445	16.9880	17.0316	17 0533	17.0751	17.11
79	17.3818	17.4258	17.4699	17.4920	17.5141	17.55
80	17.8246	17.8692	17.9139	17.9332	17.9686	18.00
81	18.2730	18.3182	18.3634	18.3856	18.4016	18.45
82	18.7270	18.7727	18 8185	18.8414	18.8643	18.91
83	19.1866	19.2328	19.2791	19.3024	19.3255	19.37
84	19.6517	19.6985	19.7454	19.7689	19.7923	19.83
85	20.1222	20.1697	20.2172	20.2410	20.2646	20.31
86	20.5989	20.6465	20.6945	20.7187	20.7427	20.79
87	21.0804	21.1289	21.1775	21.2019	21.2261	21.27
88	21.5678	21.6169	21.6660	21.6905	21.7151	21.76
89	22.0608	22.1104	22.1600	22.1849	22.2098	22.25
90	22.5592	22.6095	22.6597	22.6848	22.7100	22.76
91	23.3634	23.1141	23.1649	23.1903	23.2157	23.26
92	23.5731	23.6244	23.6757	23.7014	23.7271	23.77
93	24.0883	24.1402	24.1120	24.2181	24.2440	24.29
94	24.6091	24 6615	24.7140	24.7403	24.7665	24.81
95	25.1355	25 1885	25.2415	25.2681	25.224	25.34
96	25.6675	25.7210	25.7745	25.8015	25.8282	25.88
97	26.2050	26.2591	26.3133	26.3402	26.3674	26.42
98	26.7481	26.8027	26.8573	25.8847	26.9121	26.96
99	27.2958	27.3519	27.4072	27.4348	27.4625	27.51
100	27.8510	27.9067	27.9625	27.9904	28.0184	28.07
101	28.4108	28.4671	28.5234	28.5517	28.5798	28.63
102	28.9762	29.0330	29.0869	29.1184	29.1469	29.20
103	29.5471	29.6045	29.6620	29.6907	29.7195	29.77
104	30.1236	30.1816	30.2396	30.2686	30.2077	30.35
105	20.7057	30.7642	30.8228	30.8521	30.8814	30.94

.5	.6	.7	.75	.8	.9
14.2411	14.2780	14.3178	14.3378	14.3579	14.3979
14.6392	14.6796	14.7201	14.7403	14.7606	14.8012
15.0458	15.0868	15.1278	15.1483	15.0689	15.2100
15.4580	15.4995	15.5411	15.5619	15.5827	15.6244
15.8758	15.9178	15.9600	15.9810	16.0722	16.0444
16.2991	16.3417	16.3844	16.4058	16.4272	16.4700
16.7280	16.7712	16.8145	16.8361	16.8578	16.9011
17.1625	17.2062	17.2500	17.2719	17.2939	17.3378
17.6025	17.6468	17.6912	17.7134	17.7356	17.7801
18.0481	18.0930	18.1377	18.1604	18.1829	18.2210
18.4993	18.5448	18.5902	18.6130	18.6358	18.6814
18.9591	19.0021	19.0481	19.0712	19.0942	19.1403
19.4184	19.4650	19.5115	19.5349	19.5582	19.6049
19.8863	19.9334	19.9806	20.0043	20.0278	20.0750
20.3598	20.4074	20.4551	20.4791	20.5025	20.5507
20.8388	20.8870	20.9353	20.9596	20.9836	21.0320
21.3234	21.3722	21.4210	21.4456	21.4695	21.5188
21.8136	21.8629	21.9123	21.9370	21.9617	22.0112
22.3093	22.3592	22.4012	22.4341	22.4572	22.5092
22.8107	22.8511	22.9110	22.9369	22.9621	23.0125
23.3170	23.3685	23.4196	23.4452	23.4707	23.5219
23.8300	23.8816	23.9332	23.9579	23.9848	24.0366
24.3480	24.4001	24.4523	24.4785	24.5045	24.5568
24.8716	24.9243	24.9770	25.0035	25.0298	25.0826
25.4008	25.4540	25.5073	25.5341	25.5606	25.6140
25.9855	25.9893	26.0432	26.0702	26.0971	26.1510
26.4759	26.5302	26.5846	26.6118	26.6390	26.6935
27.0217	27.0760	27.1310	27.1591	27.1866	27.2410
27.5732	27.9280	27.6841	27.7119	27.7367	27.7953
28.1008	28.1862	28.2422	28.2704	28.2084	28.6140
28.6928	28.7494	28.8060	28.8344	28.8627	28.9194
29.2610	29.3181	29.3753	29.4038	29.4325	29.4898
29.8347	29.8924	29.9501	29.9786	30.0079	30.0657
30.4140	30.4722	30.5301	30.5596	30.5889	30.6473
30.9989	31.0577	31.1165	31.1450	31.1754	31.2344

D.	.0	.1	.2	.25	.3	.4
106	31.2934	31.3525	31.4116	31.4411	31.4708	31.530
107	31.8866	31.9462	32.0059	32.0357	32.0657	32.125
108	32.4854	32.5456	32.6058	32.6359	32.6661	32.726
109	33.0898	33.1595	33.2133	33.2417	33.2722	33.33
110	33.6997	33.7610	33.8221	33.8530	33.8838	33.945
111	34.3152	34.2771	34.4390	34.4699	34.5010	34.563
112	34.9363	34.9987	35.0612	35.0924	35.1237	35.180
113	35.5629	35.8259	35.6889	35.7204	35.7520	35.815
114	36.1952	36.2587	36.3222	36.3540	36.3859	36.449
115	36.8326	36.8970	36.9612	36.9932	37.0254	37.080
116	37.4763	37.5409	37.6056	37.6380	37.6704	37.735
117	38.1252	38.1904	38.2557	38.2883	38.3210	38.386
118	38.7797	38.8455	38.9113	38.9442	38.9772	39.043
119	39.4398	39.5061	39.5725	39.6056	39.6389	39.705
120	40.1054	40.1723	40.2392	40.2727	40.3062	40.373
121	40.7766	40.8441	40.9116	40.9453	40.9791	41.046
122	41.4534	41.5214	41.5895	41.2234	41.6575	41.725
123	42.1358	42.2043	42.2729	42.3072	42.3416	42.410
134	42.8237	42.8928	42.9619	42.9965	43.0312	43.100
125	43.5172	43.5868	43.6566	43.6914	43.7263	43.796
126	44.2102	44.2895	44.3567	44.3918	44 4271	44.497
127	44.9209	44.9916	45.0625	45.0979	45.1336	45.204
128	45.6311	45.7024	45.7738	45.8095	45.8452	45.916
129	46.4187	46.4187	46.4907	46.5266	46.5627	46.634
130	47.0682	47.1406	47.2131	47.2493	47.2857	47.358
131	47.7951	47.8681	47.9412	47.9777	48.0143	48.087
132	48.5276	48.6011	48.6747	48.7115	48.7484	48.822
133	49.2656	49.3397	49.4139	49.4510	49.4881	49.562
134	50.0093	50.0839	50.1586	50.1960	50.2334	50.308
135	50.7584	50.8337	50.9090	50.9466	50.9843	51.059
136	51.5132	51.5890	51.6648	51.7027	51.7407	51.816
137	52.2735	52.3499	52.4263	52.4644	52.5027	52.579
138	53.0394	53.1163	53.1933	53.2317	53.2703	53.347
139	53.8109	53.8884	53.9659	54.0046	54.0434	54.121
140	54.5880	54.6660	54.7440	54.7830	54.8222	54.902

.	.5
06	31.58
07	32.18
08	32.78
09	33.39
10	34.00
11	34.62
12	35.24
13	35.87
14	36.51
15	37.1
16	37.80
17	38.4
18	39.1
19	39.77
20	40.4
21	41.1
22	41.7
23	42.4
24	43.1
25	43.8
126	44.5
127	45.2
128	45.9
129	46.7
130	47.4
131	48.
132	48.8
133	49.
134	50.
135	51.
13	51.8
137	52.
138	53.
139	54.
140	54.

D.	·5	.6	·7	·75	.8	·9
06	31.5893	31.6481	31.7081	31.7377	31.7675	31.8270
07	32.1853	31.2452	32.3052	32.3351	32.3652	32.4253
08	32.7869	32.8474	32.5079	32.9381	32.9685	33.0291
09	33.3940	33.4551	33.5161	33.5467	33.5773	33.6485
10	34.0068	34.0683	34.1300	34.1608	24.1917	34.2534
11	34.6251	34.6872	34.7494	34.7895	34.8116	34.8739
12	35.2489	35.3116	35.3744	35.4057	35.4372	35.5000
13	35.8784	35.9416	36.0045	36.0368	36.0683	36.1317
14	36.5134	36.5772	36.6410	36.6729	36.7049	36.7689
15	37.1539	37.2182	37.2827	37.3149	37.3472	37.4117
16	37.8001	37.8652	37.9300	37.9624	37.9250	38.0601
17	38.4518	38.5173	38.5818	38.6156	38.6484	38.7140
18	39.1091	39.2751	39.2412	39.2742	39.3073	39.3735
19	39.7719	39.8385	39.9052	39.9385	39.9719	40.0386
20	40.4403	40.5075	40.5747	40.6083	40.6420	40.7093
21	41.1143	41.1820	41.2498	41.2837	41.3176	41.3855
22	41.7930	41.8622	41.9305	41.9646	41.9989	42.0673
123	42.4790	42.5479	42.6167	42.6512	42.6854	42.7547
24	43.1697	43.2391	43.3086	43.3433	43.3780	43.4476
125	43.8660	43.9360	44.0059	44.4009	44.0760	44.1461
126	44.5679	44.6384	44.7089	44.7442	44.7795	44.8502
127	45.2753	45.3463	45.4174	45.4530	45.4886	45.5598
128	45.9883	46.0590	46.1315	46.1673	46.2032	46.2750
129	46.7068	46.7790	46.8512	46.8373	46.9235	46.9958
130	47.4309	47.5037	47.5764	47.6128	47.6493	47.7222
131	48.1606	48.2339	48.3073	48.3439	48.3806	48.454
132	48.8959	48.9697	49.0436	49.0805	49.1176	49.1906
133	49.6267	49.7111	49.7856	49.8228	49.8601	49.9346
134	50.3832	50.4581	50.5331	50.5706	50.6082	50.6883
135	51.1351	51.2106	51.2862	51.3239	51.3618	51.437
136	51.8922	51.9987	52.0449	52.0829	52.1210	52.1573
137	52.6558	52.3324	52.8091	52 8474	52.8858	52.962
138	53.4245	53.5017	53.5389	53.6175	53.6562	53.733
139	54.0187	54.2765	54.3543	54.3931	44.4321	54.510
140	54.9786	55.0569	55.1352	55.1743	55.2136	55.292

Circles Areas in Wine Gallons.

D.	.0	.1	.2	.25	.3	.4
1	0.0034	0.0041	0.0049	0.0053	0.0057	0.0066
2	0.0136	0.0145	0.0165	0.0173	0.0180	0.0196
3	0.0306	0.0326	0.03[illegible]7	0.0356	0.0369	0.0393
4	0.0544	0.0572	0.0600	0.0615	0.0629	0.0659
5	0.0880	0.0885	0.0919	0.0937	0.0959	0.0991
6	0.1224	0.1265	0.130[illegible]	0.1328	0.1350	0.1393
7	0.1666	0.1714	0.1763	0.1787	0.1811	0.1862
8	0.2176	0.2231	0.2287	0.2315	0.2343	0.2400
9	0.2754	0.2815	0.2877	0.2910	0.2944	0.3004
10	0.3400	0.3469	0.3537	0.3572	0.3607	0.3678
11	0.4114	0.4189	0.4265	0.4303	0.4341	0.4411
12	0.4896	0.4978	0.5063	0.5102	0.5144	0.5228
13	0.5746	0.4835	0.5925	0.5970	0.6055	0.6106
14	0.6664	0.6760	0.6856	0 6904	0.6953	0.7051
15	0.7950	0.7752	0.7855	0.7907	0.7959	0.8064
16	0.8704	0.8813	0.8023	0.8978	0.9034	0.9145
17	0.9826	0.9942	1.0059	1.0117	1.0176	1.0294
18	1.1016	1.1039	1.1263	1.1325	1.1386	1.1512
19	1.2274	1.2404	1.2534	1.2600	1.2665	1.2797
20	1.3600	1.3736	1.3873	1.3942	1.4011	1.4149
21	1.4995	1.5137	1.5281	1.5352	1.5425	1.5570
22	1.6456	1.6606	1.6757	1.6832	1.6908	1.7060
23	1.7986	1.8142	1.8299	1.8379	1.8457	1.8617
24	1.9584	1.9747	1.9911	1.9994	2.0076	2 0242
25	2.1250	2.1420	2.1951	2.1677	2.1763	2.1936
26	2.2984	2.3161	2.3339	2,3428	2.3517	2.3697
27	2.4786	2.4970	2.5155	2.5247	2.5340	2.5526
28	2.6656	2.6847	2.7038	2.7134	2.7230	2.7428
29	2.8594	2.8791	2.8985	2.9089	2.9188	2.9388
30	3.0600	3.0804	3.1009	3.1112	3.1215	3.1422
31	3.2674	3.2885	3.3097	3.3203	3.3309	3.3522
32	3.4816	3.5034	3.5253	3.5362	3.5472	3.5692
33	3.7026	3.7251	3.7476	3.7585	3.7702	3.7929
34	3.9304	3.9536	3.9768	3.9885	4.0001	4.0235
35	4.1659	4.1888	4.2127	4.2247	4.2367	4.2608

D.	·5	.6	·7	·75	·8	·9
1	0.0077	0.0087	0.0098	0.0104	0.0110	0.0123
2	0.0213	0.0230	0.0248	0.0158	0.0267	0.0286
3	0.0416	0.0440	0.0465	0.0478	0.0491	0.0517
4	0.0689	0.0720	0.0751	0.0767	0.0780	0.0816
5	0.1029	0.1067	0.1106	0.1124	0.1140	0.1184
6	0.1437	0.1481	0.1527	0.1549	0.1573	0.1619
7	0.1913	0.1964	0.2016	0.2042	0.2059	0.2122
8	0.2457	0.2515	0.2574	0.2603	0.2633	0.2693
9	0.3069	0.3134	0.3199	0.3233	0.3266	0.3332
10	0.3773	0.3749	0.3893	0.3929	0.3966	0.4040
11	0.4497	0.4576	0.4655	0.4694	0.4735	0.4815
12	0.5313	0.5398	0.5484	0.5527	0.5571	0.5659
13	0.6197	0.6289	0.6382	0.6428	0.6475	0.6569
14	0.7149	0.7248	0.7348	0.7398	0.7445	0.7549
15	0.8169	0.8275	0.8381	0.8434	0.8488	0.8592
16	0.9257	0.9369	0.9482	0.9539	0.9596	0.9711
17	1.0413	1.0532	1.0652	1.0712	1.0773	1.0894
18	1.1637	1.1763	1.1890	1.1953	1.2017	1.2145
19	1.2929	1.3062	1.3195	1.3262	1.3329	1.3460
20	1.4289	1.4428	1.4569	1.4639	1.4710	1.4852
21	1.5710	1.5862	.6009	1.6084	1.6157	1.6307
22	1.7213	.7266	1.7520	1.7597	1.7675	1.7830
23	1.8777	1.8937	1.9098	1.9179	1.9259	1.9421
24	2.0409	2.0576	2.0744	2.0828	2.0912	2.1001
25	2.2109	2.2283	2.2457	2.2544	2.2632	2.2807
26	2.3872	2.4057	2.4238	2.4329	2.4420	2.4603
27	2.5713	2.5900	2.6088	2.6182	2.6277	2.6460
28	2.7617	2.7811	2.8006	2.8104	2.8201	2.8395
29	2.9589	2.9789	2.9992	3.0093	3.0194	3.0396
30	3.1600	3.1837	3.2045	3.2149	3.225	3.2464
31	3.3737	3.3951	3.4166	3.4274	3.4382	3.4599
32	3.5913	3.6134	3.6356	3.6467	3.6579	3.6800
33	3.8157	3.8385	3.8614	3.8729	3.8843	3.9073
34	4.0469	4.0704	4.0040	4.1058	4.1174	4.1412
35	4.2848	4.3091	4.3332	1.3454	4.2575	4.3820

D.	.0	.1	.2	.25	.3	.4
36	4.4064	4.4309	4.4555	4.4679	4.4802	4.5949
37	4.6546	4.6798	4.7051	4.7178	4.7304	4.7558
38	4.9096	4.9355	4.9614	4.9744	4.9874	5.0135
39	5.1714	5.1985	5.2246	5.2380	5.2513	5.2781
40	5.4400	5.4673	5.4045	5.5082	5.5220	5.5494
41	5.7154	5.7434	5.7713	5.7854	5.7994	5.8275
42	5.9976	6.0262	6.0549	6.0692	6.0836	6.1124
43	6.2866	6.3159	6.3452	6.3599	6.3746	6.4041
44	6.5824	6.6124	6.6424	6.6574	6.6725	6.7027
45	6.8850	6.9156	6.9463	6.9617	6.9771	7.0079
46	7.1946	7.2258	7.2571	7.2728	7.2886	7.3201
47	7.5106	7.5426	7.5757	7.5908	7.6068	7.6390
48	7.8336	7.8663	7.8990	7.9150	7.9318	7.9647
49	8.1636	8.1968	8.2302	8.2469	8.2637	8.2937
50	8.5000	8.5340	8.6681	8.5850	8.6023	8.6366
51	8.8438	8.8781	8.9129	8.9304	8.9478	8.9827
52	9.1936	9.2290	9.2645	9.2823	9.3000	9.3356
53	9.5506	9.5867	9.6228	9.6409	9.6599	9.695
54	9.9144	9.9512	9.9880	10.0065	10.0249	10.0619
55	10.2850	10.3224	10.3599	10.3787	10.3075	10.435
56	10.6624	10.7000	10.7387	10.7579	10.7770	10.815
57	11.0466	11.0854	11.1243	11.1437	11.1632	11.202
58	11.4376	11.4771	11.5166	11.5364	11.5562	11.595
59	11.8354	11.8755	11.9157	11.9359	11.9560	11.996
60	12.2400	12.2808	12.3217	12.3422	12.3627	12.403

D.	·5	·6	·7	·75	·8	·9
36	4.5297	4.5545	4.5794	4.5919	4.6044	4.0295
37	4.7813	4.8068	4.8324	4.8452	4.8581	4.8838
38	5.0390	5.0695	5.0922	5.1054	5.1185	5.1440
39	5.3043	5.3318	5.3588	5.3723	5.3858	5.4128
40	5.5769	5.6044	5.6320	5.6459	5.6597	5.6875
41	5.8557	5.8840	5.9123	5.9265	5.9407	5.9691
42	6.1413	6.1502	6.1992	6.2198	6.2283	6.2574
43	6.4337	6.4633	6.4930	6.5079	6.5227	6.5525
44	6.7329	6.7632	6.7935	6.8089	6.8239	6.8544
45	7.0380	7.0698	7.1009	7.1160	7.1320	7.1632
46	7.3517	7.3834	7.4151	7.4310	7.4469	7.4787
47	7.6713	7.7036	7.7360	7.7522	7.7685	7.8010
48	7.9977	8 0307	8.0638	8.0804	8.0969	8.1301
49	8.3309	8.3649	8.3984	8.4153	8.4322	8.4661
50	8.6709	8.7053	8.7397	8.7570	8.7742	8.8088
51	9.0173	9.0527	9.0879	9.1055	9.1231	9.1583
52	9.3713	9.4070	9.4428	9.4605	9.4787	9.5146
53	9.7315	9.7681	9.8229	9.8229	9.8411	9.8777
54	10.0989	10.3300	10.1731	10.1917	10.2103	10.2476
55	10.4249	10.5107	10.5485	10.5674	10.5864	10.6244
56	10.8537	10.8922	10.9307	10.9600	10.9693	11.1079
57	11.2413	11.2804	11.3196	11.3393	11.3589	11.3982
58	11.6357	11.6755	11.7154	11.7354	11.7553	11.7953
59	12.0369	12.0774	12.1180	12.1383	12.1586	12.1993
60	12.4944	12.4861	12.5273	12.5680	12.5986	12.6100

Problem the Twenty Firſt.

The Uſe of Circle Areas.

TO find what Quantity of Liquor will cover the Riſing Crown of a Copper. Admit the Riſing Crown to be the Fruſtum of a Globe inſcribed in the Lower Fruſtum of a Parabolick Conoid.

From the Area of the Diameter, at the Top of the Crown, ſubtract the Area of $\frac{4}{3}$ of the Height; multiply the Remainder by $\frac{1}{2}$ the Height, and the Product will be the Liquor that will cover the Crown.

Example.

The Diameter at the Top (AB)	76.4	I would know the Content in Beer Gallons.
Height (FF)	9.3	

16.2565 Area of the Top Diameter.
0.4282 Area of $\frac{4}{3}$ of the Height.

$$\begin{array}{r}
16.2565 \\
0.4282 \\
\hline
15.8283 \\
4.65 \\
\hline
791415 \\
949698 \\
633132 \\
\hline
73.601595
\end{array}$$

73.601595 Product

73 Gallons, and $\frac{601595}{1000000}$ of a Gallon.

Figure

Figure the Fourteenth.

(CED) is the Fruſtum of a Globe, inſcribed in the Fruſtum of a Parabolick Conoid (ABCD)

The Uſe of Circles Areas.

To find the Content of a Cylinder.

MULTIPLY the Area of the Cylinders Diameter by the Height, and the Ppoduct is the Content.

Example.

Diameter————————65 } I would know the
Height————————54 } Cont. in Beer Gall.
11.7670 Area of the Diameter.
54 Height.

————————

470680
588350

————————

635.4180 Content in Beer Gallons.

To find the Content of a Cone.

MULTIPLY the Area of the Diameter by one third of the Height, and the Product is the Content.

Example.

Example.

Diameter ———— 62 } I would know the Content in Beer Gallons?
Height ———— 112 }

3) 112
37.33 Third of the Height.

10.7059
37.33
———
321177
321177
749413
321177
———
399.651247 Content in Beer Gallons.

To find the Content of a Parabolick Conoid.

MULTIPLY the Area of the Diameter by half of the Height, and the Product is the Content.

Example.

Example.

Diameter———65 }
Height———95 } I would know the Content in Beer Gallons?

95
47.5 Half the Height.
11.7670 Area of the Diameter.
475 Half the Height.

588350
823690
470680

558.93250 Content in Beer Gallons.

To find the Content of a Cask taken for the Middle Fruſtum of a Parabolick Spindle.

TO twice the Area of the Bung Diameter, add the Area of the Head Diameter, from the Sum ſubtract the Area of the Difference of the Diameters multiplied by 0.4; then multiply the Remainder by one third of the Length, and you have the Content.

Example

Example.

A Cask { Bung —— 31.7 / Head —— 24.3 / Length —— 49.3 } I would know the Content in Beer Gallons.

31.7
24.3

Difference of 7.4 Diameters.

0.1525 Area of Difference.
0.4

0.6100

2.7987
2 7987
1.6446

7.2420
0.6100

6.6320
16.4

265280
397920
66320

108.76480 Content in Beer Gallons.

3) 49.3 (

16.4 ($\frac{1}{3}$ of the height

To find the Quantity of Liquor remaining in a Spheroidical Cask ſtanding upon one Head, and the Axe perpendicular to the Horizon.

FROM the Area of the Bung Diameter, ſubtract the Area of the Head Diameter, multiply the Remainder by the Square of the Difference, between the Wet Inches and the Semi-length; this Product divide by the Triple Square of the Semi-length, and ſubtract the Quotient from the Area of the Bung Diameter, multiply the Remainder by the Difference between the Wet Inches and the Semi-length, and the Product will be how much Liquor is contain'd in the Veſſel above or under its half Content.

Example.

Bung———————40.8
Heads ———————35.3
Length———————61.8
Wet Inches———41.9

I would know the Content in Beer Gallons.

61.8 Lenqth

30.9

41.9
30.9

11.0 Difference between the Wet Inches and Semi-length.

11
11

11
11

121

4.6362
3.4705

1.1657
121

11657
23314
11657

2865) 141.0497 (492
11460

26449
25785

6647
5730

917

30.9
30.9

2781
9270

954.81
3

2864.43

```
46362
  492
-----
4.5870
    11
------
 45870
45870
------
50.4570
-------
```

The half of the Content of the Veſſel is	131,25
The Liquor contained above the half Content is	50 45
The Quantity of Liquor contained in the Veſſel is	118.70

To

To find the Content of the Fruſtum of a Globe.

TO the Area of the Fruſtums Diameter, add $\frac{4}{3}$ of the Area of the Height, multiply the Sum by half the Height, and you have the Content of the Fruſtum.

Example.

Admit the Diameter of a Crown of a Copper to be 75 Inches, and the Height 31 Inches; I would know the Content in Beer Gallons.

15.6662 Area of Diameter.

2.6765 Area of Height.

.8621 $\frac{1}{3}$ of the Area of the Height.

19.2348

15.5

961740

961740

192348

298.13940 Content in Beer Gallons.

To find the Content of the Fruſtum of a Cone cut off by a Plain parallel to the Baſe.

TO the Area of the Semi-Sum of the Diameters add one third of the Area of the Semi-difference of the Diameters; multiply the Sum by the Depth, and you have the Content.

Example.

The Fruſtum of a Cone the greateſt Diameter is *Inch.* 75. 1, the leaſt Diameter is *Inch.* 62. 5, and the Height or Depth is *Inch.* 42. 2, I would know the Content in Beer Gallons.

75.1
62.5

137.6 Sum Diameters.

68.8 Semi-Sum.
75.1
62.5

12.6 Difference.

6.3 Semi-difference.

0.1105

0.0368

13.1831
.0368

13.2211
42.2

264398
264398
528796

557.87978 Content in Beer Gallons.

* * *

To find the Content of the Fruſtum of a Parabolick Conoid.

TO the Area of the greateſt Diameter add the Area of the leaſt Diameter; multiply the Sum by half the Depth, and you have the Content.

Example.

Example.

A Fruſtum of a Parabolick Conoid the top Diameter is $\overset{Inch.}{79.\ 3}$, the bottom Diameter is $\overset{Inch.}{91.\ 2}$, and the Depth is $\overset{Inch.}{54.\ 2}$, I would know the Content in Beer Gallons.

$$\begin{array}{r} 23.1649 \\ 17.5141 \\ \hline 40.6790 \\ 2847530 \\ 813580 \\ \hline 1102.40090 \end{array}$$

1102.40090 Content in Beer Gallons.

* * *

To find the Content of a Cask taken for the Middle Fruſtum of a Spheroid.

TO twice the Area of the Bung Circle, add the Area of the Head Circle, multiply the Sum by one third of the Length, and you have the Content.

Example.

A Cask { Bung————23 } I would know the
A Cask { Heads————21 } Content in Beer Gal-
A Cask { Length————27 } lons.

1.4733 Area Bung.
1.4733 Area Bung.
1.2282 Area Head.

4.1748
9

37.5732 Content in Beer Gallons.

To calculate Diagonal Tables or Lines for Casks, meaſured as the Middle Fruſtum of a Spheroid.

The Bung, Head, and Length; to find the Diagonal.

TO the Square of the Sum of the Diameters add the Square of the Length, the Square Root of $\frac{1}{4}$ of the Sum is the Diagonal.

Inches.
23 Bung.
19.9 Head.

42.9
42.9

3861
858
1716

1840.41 Square of the Sum of the Diam.
729

4) 2569.41

27 Length.
27

189
54

729

. . . . *Inches.*
642.3525 (25.34 Diagonal.
45) 242
225

503) 1735
1509

5064) 22625
20256

2369

As the Content of the Veſſel, to the Cube of its Diagonal; ſo is 1, 2, 3, 4, 5, *&c.* to the Cube of their Diagonals, whoſe Cube Roots will be the Diagonals for the Content given.

Example

Bung———23
Head———19.9
Length———27

The Diagonal will be 25 Inches, 34, and the Cube of the Diagonal will be 16277 Inches; by the help of the Logarithm Tables the Diagonals may by eaſier calculated: For if to the Logarithm of the Cube of the Diagonal, which is 16277, you add the Logarithm of 1, 2, 3, 4, 5, *&c.* and from every of the Sums ſubtract the Logarithm of Content, which is 36 Gallons, 45, then the Number anſwering to $\frac{1}{3}$ of the Remainder will be the Diagonal ſought.

Inches.	*Logarithms.*
To 16277	4.21157
Add 1 Gallon	0.00000
Sum	4.21157
Take 36. 45 Gallons	1.56170
Remainder	2.64987
Diagonal Inches 7. 65 is $\frac{1}{3}$ Rem.	88329

Inches.	*Logarithms.*
To 16277	4.21157
Add 2 Gallons	0.30103
Sum	4.51260
Subtract 36. 45	1.56170
Remainder	2.95090
Diagonal Inch. 9.65, is $\frac{1}{3}$ Remaind.	0.98363

Inches.	*Logarithms.*
To 16277	4.21157
Add 3 Gallons	0.47712
Sum	4.68869
Subtract 36.45 Gallons	1.56170
Remainder	3.12699
Diagonal Inch. 11.03, is $\frac{1}{3}$ Remain.	1.04233

Inches. *Logarithms.*
To 16277 ——— 4.21157
Add 4 Gallons ——— 0.60206

Sum ——— 4.81363
Subtract 36. 45 Gallons ——— 1.56170

Remainder ——— 3.25193

Diagonal Inches 12. 13, is ⅓ Rem. ——— 1.08397

Otherwise. *Logarithms.*
From 16277 Inches ——— 4.21157
Take 36.45 Gallons ——— 1.56170

The Remainder is ——— 2.64987

The Common Addend which added to the Logarithm of 1, 2, 3, 4 Gallons, &c. then ⅓ of every of these Sums will be the Logarithms of the Diagonals required.

Logarithms.
2.64987
1 Gallon —— 0.00000

2.64987

Inch.
Diagonal 7. 65 is ⅓ of the Remain. ——— 088329

Logarithms

Logarithms.
2.64987
2 Gallon——0.30103

2.95090

Inch.
Diagonal 9. 63 is $\frac{1}{3}$ of the Remain.———0.98363

Logarithms.
2.64987
3 Gallons—0.47712

3.12699

Inch.
Diagonal 11. 03 is $\frac{1}{3}$ of the Remainder——1.04233

Logarithms.
2.64987
4 Gallons—0.60206

3.25193

Inch.
Diagonal 12. 13 is $\frac{1}{3}$ of the Remainder——1.08397

A TABLE for the finding the
PERIFERY
OF AN
ELLIPSIS

Ax	Perifery	Ax	Perifery	Ax	Perifery	Ax.	Perifery
.1	2.0012	.26	2.1561	.51	2.4342	.76	2.7745
.2	2.0028	.27	2.1658	.52	2.4467	.77	2.7891
.3	2.0048	.28	2.1756	.53	2.4594	.78	2.8038
.4	2.0072	.29	2.1856	.54	2.4723	.79	2.8186
.5	2.0100	.30	2.1956	.55	2.4852	.80	2.8334
.6	2.0133	.31	2.2056	.56	2.4983	.81	2.8482
.7	2.0170	.32	2.2160	.57	2.5114	.82	2.8630
.8	2.0213	.33	2.2264	.58	2.5245	.83	2.8779
.9	2.0261	.34	2.2368	.59	2.5377	.84	2.8929
.10	2.0314	.35	2.2474	.60	2.5510	.85	2.9080
.11	2.0370	.36	2.2561	.61	2.5644	.86	2.9231
.12	2.0432	.37	2.2692	.62	2.5	.87	2.9382
.13	2.0496	.38	2.2803	.63	2.5915	.88	2.9534
.14	2.0564	.39	2.2915	.64	2.6052	.89	2.9686
.15	2.0634	.40	2.3028	.65	2.6189	.90	2.9839
.16	2.0708	.41	2.3142	66	2.6327	.91	2.9993
.17	2.0784	.42	2.3256	.67	2.6465	.92	3.0147
.18	2.0862	.43	2.3371	.68	2.6604	.93	3.0307
.19	2.0944	.44	2.3488	.69	2.6744	.94	3.0458
.20	2.1024	.4	2.3607	.70	2.6884	.95	3.0614
.21	2.1105	.46	2.3726	.71	2.7025	.96	3.0770
.22	2.1192	.47	2.3848	.72	2.7166	.97	3.0928
.23	2.1281	.48	2.3970	.73	2.7309	.98	3.1086
.24	2.1373	.49	2.4094	.74	2.7453	.99	3.1242
.25	2.1467	.50	2.4218	.75	2.7599	1.00	3.1402

To find the Perifery of an Ellipſis by the preceding Tables.

AS the Longeſt or Tranſverſe Diameter of an Ellipſis is to the ſhorteſt or Conjugate Diameter, ſo is 1.00 the Tabular longeſt Diameter of the Ellipſis to a Number, againſt which in the Table you have the Perifery of an Ellipſis, whoſe Longeſt Diameter is 1.00.

As (1.00) is to the ſaid Perifery, ſo is the Longeſt Diameter of an Ellipſis to its Perifery.

Example

Inch.
The Tranſverſe, or longeſt Diameter is 197, and
Inch.
the Conjugate or Shorteſt is 85, I would know the Perifery?

As 197 is to 85, ſo is 1.00
85

197) 8500 (431
788

620
591

290

The Number anſwering to .43 1, is 2,3382, which is the Perifery of an Ellipſis, whoſe longeſt Diameter is (1) or 1.00.

As 1.00 is to 2.3382, ſo is 197
197

16367 4
210438
23382

460.6254

The Periſery is 460 Inches, and 6254 parts of an Inch.

To find the Content of a Slice of the Middle Fruſtum of a Parabolick Spindle cutting the Heads.

100.000 (or *b*) the Bung Diameter.
86.521 (or *h*) the Head Diameter.
117.591 (or *l*) the Length.
(*c*) the Diſtance from the Center of the Bung.
(*a*) the Solidity of the Slice required.

$$\text{Theor. } a = \overline{\sqrt{bb - 4cc} + \sqrt{\frac{hh}{4} - cc}} \times \frac{2l}{3}$$

Or thus,

From the Square of the Bung Diameter ſubtract four times the Square of the Diſtance, from the Center of the Bung; extract the Square Root of the Remainder, from a Quarter of the Square of the Head Diameter, ſubtract the Square of the Diſtance from the Center of the Bung; extract the Square Root, then add the Square Roots together, and multiply the Sum by two thirds of the Length, and you have the Solidity of the Slice.

5. The Diſtance from the Chnter of the Bung For the firſt Inch, 1. 5 for the ſecond, &c.

.5
.5

.25
4

1.00 is four times the Square of the Diſtance from the Center of the Bung.

117.3 91 is the Length.

39.1303
39.1304

78.2607 two thirds of the Length.

10000 Square of the Bung.
1.00

9999 (99.9949 Square Root.

189) 1899
1701

1989) 19800
17901

19989) 189900
179901

199984) 999900
799936

1999889) 19996400
17999001

1997399

[86.521]

```
          86.521
          86.521
        ----------
           86521
         173042
        432605
       519126
      692168
     -------------
  4) 7485.883441
     ---------------
     1871.47086025  A quarter of the Square of
         .25000000    the Head.
     ----------------
      .  .  .  .  . .
     1871.22086025 (43.2576 Square Root.
     16
     ---
 83) 271
     249
    ------
862) 2222
     1724
    --------
8645) 49808
      43225
     ---------
86507) 658360
       605549
      ----------
865146) 5281125
        5190876
       ----------
          90249
       ----------                     99.9949
```

99.9949 Square Root.
43.2576 Square Root.

143.2525 Sum of the Roots.
78.2607

10027675
85951500
2865050
11460200
10027675

11211.04092675 Solidity of the Slice.

To find the Content of a Slice of the Middle Fruſtum of a Parabolick Spindle not cutting the Head.

(b) or (100) the Bung Diameter.
(l) or (117.391) the Length.
(d.) or (6.7325) the Semi-difference of Bung and Head Diameter.
(m) the Diſtance from the Bung.
(a) the Solidity of the Slice required.

Theor. $a = \frac{4lm}{3} \times \sqrt{\frac{b-m}{d}}$ JQE

Or thus,

From the Bung Diameter, ſubtract the Diſtance from the Bung, divide the Remainder by the Semi-difference of the Bung and Head Diameters; extract the Square Root of the Quotient; then multiply the Square Root by $\frac{4}{3}$ of the Length, multiplied by the Diſtance from the Bung, and you have the Solidity of the Slice required.

.5 Diſtance from the Bung.
156 5213 Four thirds of the Length.
78.26065, is ¾ of the Length multiplied by the Diſtance from the Bung.
100 Bung.
05 Diſtance.

....

6.7395) 99.500000000000 (14.76370650
67395

321050
369580

514700
471765

429350
404370

249800
202185

476150
471765

438500
404370

341300
336975

43250

```
        14.76370650 (3.8423
        9
        ----------
   68)  576
        544
        ------
  764)  3237
        3056
        ------
 7682)  18106
        15364
        ------
76843)  274250
        230529
        ------
         43721

       78.26065
        3.8423
     ----------
       23478195
      15652130
     31304260
    62608520
   23478195
   -----------
   3007.00895495
```

3007.00895495 Solidity of the Slice required.

A

A Compendious Method for the Menſuration of Solids.

A Cylinder is $\frac{11}{14}$ of the Parallelopipedon that Circumſcribes it.

A Cone is $\frac{1}{3}$ of the Cylinder that Circumſcribes it, having the Baſe and Height.

A Globe is $\frac{2}{3}$ of the Cylinder that Circumſcribes it, having equal Diameter and Height.

A Spheroid is $\frac{2}{3}$ of the Cylinder, whoſe Axe or Tranſverſe Diameter, is the Axe of the Cylinder, and the Conjugate, or Shorteſt Diameter, is the Diameter of the Cylinder.

A Square Pyramid is $\frac{1}{3}$ of the Parallelopipedon that Circumſcribes it, having the ſame Baſe and Altitude, and all other Pyramids having Triangular, Pentagonal Baſes, &c. are $\frac{1}{3}$ of the Priſms that Circumſcribe them.

A Parabolick Conoid is $\frac{1}{2}$ of the Cylinder that Circumſcribes it, having the ſame Baſe as the Cylinder, and the Altitude the ſame with the Altitude of the Cylinder.

An Hyperbolick Conoid is $\frac{5}{12}$ of the Cylinder that Circumſcribes it, having the ſame Baſe and Height as the Cylinder.

A Parabolick Spindle is $\frac{8}{15}$ of the Cylinder that Circumſcribes it, whoſe Axe is the Axe of the Cylinder, and the Diameter the Diameter of the Cylinder.

The Lower Fruſtum of a Square Pyramid is equal to a ſquare Pyramid, whoſe Altitude is the ſame as the Altitude of the Fruſtum, and the Baſe the ſquare of the Sum of the Sides leſs by their Rectangle.

The Lower Fruſtum of a ſquare Pyramid to the Lower Fruſtum of a Cone, is as 14 to 11.

Twice the Solidity of the Fruſtum of a Globe is equal to a Cylinder, whoſe Diameter and Height is the ſame with the Diameter and Height of the Fruſtum, more a Cone, whoſe Diameter is twice the Height of the Fruſtum, and Axe once the ſaid Height.

The Solidity of the Fruſtum of a Spheroid cut by a Plain parallel to the Axe. As the ſhorteſt or Conjugate Diameter of the Fruſtum, to the Tranſverſe or longeſt, ſo is the Fruſtum of the Globe Inſcribed, to the Fruſtum of the Spheroid Circumſcribed and cut by the ſame Plain.

Two thirds of the Bung Diameter added to one third of the Head Diameter, gives the Diameter of a Cylinder (if the Length be the ſame as the Cask) that contains as much as the Cask.

To find what proportion any of the before mentioned Solids *bear to a* Parallelopipedon *Circumſcribing.*

Example.

A Cone is $\frac{1}{3}$ of the Cylinder that Circumſcribes it, (that is) it is the $\frac{1}{3}$ of $\frac{11}{14}$ of a Parallelopipedon which being reduced according to the Method of Vulgar Fractions, will be $\frac{11}{42}$, that is, a Cone is $\frac{11}{42}$ of the Parallelopipedon Circumſcribing.

A Globe or Sphere is $\frac{2}{3}$ of the Cylinder that Circumſcribes it, that is $\frac{2}{3}$ of $\frac{11}{14}$ of the Parallelopipedon, which being reduced according to Vulgar Fractions, will be $\frac{22}{42}$, and by abbreviating of this Fraction, it will be $\frac{11}{21}$ of the Parallelopipedon Circumſcribing.

A Spheroid is $\frac{2}{3}$ of the Cylinder that Circumſcribes it, that is $\frac{2}{3}$ of $\frac{11}{14}$ of the Parallelopipedon, which being reduced according to the Method of Vulgar Fractions, will be $\frac{22}{42}$. and by abbreviating of this Fraction, it will be $\frac{11}{21}$ of the Parallelopipedon Circumſcribing.

A Parabolick Conoid is $\frac{1}{2}$ of the Cylinder that Circumſcribes it, that is $\frac{1}{2}$ of $\frac{11}{14}$ of the Parallelopipedon, which being reduced according to the Method of Vulgar Fractions, will be $\frac{11}{28}$ of the Parallelopipedon Circumſcribing.

An Hyperbolick Conoid is $\frac{5}{12}$ of the Cylinder that Circumſcribes it, $\frac{5}{12}$ of $\frac{11}{14}$ of the Parallelopipedon, which being reduced according to the Method of Vulgar Fractions, will be $\frac{55}{168}$ of the Parallelopipedon Circumſcribing.

A Parabolick Spindle is $\frac{8}{15}$ of the Cylinder that Circumſcribes it, that is $\frac{8}{15}$ of $\frac{11}{14}$ of the Parallelopipedon, which being reduced according to the Method of Vulgar Fractions, will be $\frac{88}{210}$, and by abbreviating it will be $\frac{44}{105}$ of the Parallelopipedon Circumſcribing.

Every Parallelopipedon hath ſuch Proportion to the Cylinder Inſcribed, as 14 to 11.

Every Parallelopipedon hath ſuch Proportion to the Cone Inſcribed, as 42 to 11.

Every Parallelopipedon hath ſuch Proportion to the Sphere Inſcribed, as 21 to 11.

Every Parallelopipedon hath ſuch Propprtion to the Spheroid Inſcribed, as 21 to 11.

Every Parallelopipedon hath ſuch Proportion to the Pyramid Conoid Inſcribed, as 3 to 1.

Every Parallelopipedon hath ſuch Proportion to the Parabolick Conoid Inſcribed, as 28 to 11.

Every Parallelopipedon hath ſuch Proportion to the Hyperbolick Conoid Inſcribed, as 168 to 55.

Every Parallelopipedon hath ſuch Proportion to the Parabolick Spindle Inſcribed, as 125 to 44.

To find the Content of the Fruſtum *of a Square* Pyramid.

Find the Area of the Top and Bottom of the Fruſtum, then multiply the Area's together, and extract the Square Root.

To the Square Root add the Area's of the Top and Bottom, and multiply the Sum by $\frac{1}{3}$ of the Height, and you have the Solidity of the Fruſtum.

As 14 to 11, ſo is the Fruſtum of the Pyramid to the Fruſtum of the Cone.

The Uſe of the Sliding-Rule in Meaſuring Plank and Timber.

CARPENTERS, Joyners, *&c.* make Uſe of a Rule of Two Foot long, for taking Dimenſions; this Rule has a Joint in the Middle, by means of whith it ſhuts in to one Foot in Length: In the Middle of theſe Parts there is cut a Groove for a Slip of Wood to ſlide in, call'd the Sliding-piece; which Sliding-piece, and the two Parts of the Leg of the Ruler contiguous thereto are furniſhed with ſuch Diviſions and Numbers as are proper for determining the Number of Superficial Feet in any Plank, or of Solid Feet in any Piece of Timber: Our Author, in this Treatiſe, has ſhewn how to do this by Tables only, and his Method is very exact and expeditious; but ſince the Generality of thoſe who deal in Plank, Timber, *&c.* are fallen into the Method of Meaſuring their Quantities by the Sliding-Rule upon account of the Diſpatch it gives, and the ſufficient Nearneſs of its Concluſions, (tho' the ſame degree of Accuracy cannot be obtained by it as by Tables nicely calculated.) Therefore that this Book may be render'd more generally beneficial, and that every Perſon concern'd in theſe Affairs may have two ready and expeditious Ways of doing the ſame Thing, *viz.* one by the Tables, and another by the Rule, whereby the Truth of their Operations will be proved, I have been deſir'd to add the Uſe of the ſaid Sliding-Rule; In order to which, it will be neceſſary to explain the Diviſions and Numbers mentioned above.

This I ſhall do in as plain a Method as poſſible, in the Room allowed me; not only becauſe I have obſerved that Authors who have profeſſedly writ upon this Subject, have been deficient in this Point; but alſo that I may make this little Addition of a piece with the reſt of the Book.

On the the Sliding-piece there are two double Lines of Numbers, and a third on the Leg of the Ruler: Theſe are all divided alike, and are number'd from the Left-hand towards the Right with the Figures 1, 2, 3, 4, 5, 6, 7, 8, 9 and 1, which ſtands in the Middle; and theſe are the whole Diviſions in the firſt part of the double Line of Numbers. Then follows 2, 3, 4, 5, 6, 7, 8, 9, and 10, which are the whole Diviſions in the Second part. Upon the Leg of the Ruler is alſo another Line, having a Figure of 4 at the Left-hand End; then follows 5, 6, 7, 8, 9, 10, 20, 30, 40, which are the whole Diviſions; this Line is called the Square or Girt-Line. The whole Diviſions of all theſe Lines are ſubdivided upon ſome Rules into more parts than upon others. The whole Diviſions, and the moſt uſual Subdiviſions of the three Lines of Numbers are exhibited in the Firſt, Third, Fifth, *&c.* odd Columns of the two following Tables, where the large Figures are the Whole, and the intermediate ſmall ones the Number of Subdiviſions between each whole Diviſion, the Values of every one of which are contained in the Second, Fourth, Sixth, *&c.* even Columus, upon the Suppoſition that the Figure 1 at the Beginning be called or eſteemed Unity; yet theſe Numbers in theſe even Columns may be made to expreſs the Values of the ſaid Diviſions and Subdiviſions upon any other Suppoſition: For if you call the firſt 1 Ten times, or One hundred times, *&c.* more than it is;

1	1.0	5	3.5	**6**	6.0	5	8.5	10	12.0
1	1.1	6	3 6	1	6.1	6	8.6	11	12.2
2	1.2	7	3.7	2	6.2	7	8.7	12	12.4
3	1.3	8	3.8	3	6.3	8	8.8	13	12.6
4	1.4	9	3.9	4	6.4	9	8.9	14	12.8
—	—	—	—	—	—	—	—	—	—
5	1.5	**4**	4.0	5	6.5	**9**	9.0	15	13.0
6	1.6	1	4.1	6	6.6	1	9.1	16	13.2
7	1.7	2	4.2	7	6.7	2	9.2	17	13.4
8	1.8	3	4.3	8	6.8	3	9.3	18	13.6
9	1.9	4	4.4	9	6.9	4	9.4	19	13.8
—	—	—	—	—	—	—	—	—	—
2	2.0	5	4.5	**7**	7.0	5	9.5	20	14.0
1	2.1	6	4.6	1	7.1	6	9.6	21	14.2
2	2.2	7	4.7	2	7.2	7	9.7	22	14.4
3	2.3	8	4.8	3	7.3	8	9.8	23	14.6
4	2.4	9	4.9	4	7.4	9	9.9	24	14.8
—	—	—	—	—	—	—	—	—	—
5	2.5	**5**	5.0	5	7.5	**1**	10.0*	25	15.0
6	2.6	1	5.1	6	7.6	1	10.2	26	15.2
7	2.7	2	5.2	7	7.7	2	10.4	27	15.4
8	2.8	3	5.3	8	7.8	3	10.6	28	15.6
9	2.9	4	5 4	9	7.9	4	10.8	29	15.8
—	—	—	—	—	—	—	—	—	—
3	3.0	5	5.5	**8**	8.0	5	11.0	30	16.0
1	3.1	6	5.6	1	8.1	6	11.2	31	16.2
2	3.2	7	5 7	2	8.2	7	11.4	32	10.4
3	3.3	8	5.8	3	8.3	8	11.6	33	16.6
4	3.4	9	5.9	4	8.4	9	11.8	34	16.8

then remove the Point which ſeparates the Decimal from the Whole Number, one or two, *&c.* Figures to the Right-hand, ſupplying the Place of Figures with Cyphers, if need be, and you will have their

35	17.0	10	25.0	15	37.5	**5**	50.0	5	75.0
36	17.2	11	25.5	16	38.0	1	51.0	6	76.0
37	17.4	12	26.0	17	38.5	2	52.0	7	77.0
38	17.6	13	26.5	18	39.0	3	53.0	8	78.0
39	17.8	14	27.0	19	39.5	4	54.0	9	79.0
40	18.0	15	27.5	**4**	40.0	5	55.0	**8**	80.0
41	18.2	16	28.0	1	40.5	6	56.0	1	81.0
42	18.4	17	28.5	2	41.0	7	57.0	2	82.0
43	18.6	18	29.0	3	41.5	8	58.0	3	83.0
44	18.8	19	29.5	4	42.0	9	59.0	4	84.0
45	19.0	**3**	30.0	5	42.5	**6**	60.0	5	85.0
46	12.2	1	30.5	6	43.0	1	61.0	6	86.0
47	19.4	2	31.0	7	43.5	2	62.0	7	87.0
48	19.6	3	31.5	8	44.0	3	63.0	8	88.0
49	19.8	4	32.0	9	44.5	4	64.0	9	89.0
2	20.0	5	32.5	10	45.0	5	65.0	**9**	90.0
1	20.5	6	33.0	11	45.5	6	66.0	1	91.0
2	21.0	7	33.5	12	46.0	7	67.0	2	92.0
3	21.5	8	34.0	13	46.5	8	68.0	3	93.0
4	22.0	9	34.5	14	47.0	9	69.0	4	94.0
5	22.5	10	35.0	15	47.5	**7**	70.0	5	95.5
6	23.0	11	35.5	16	48.0	1	71.0	6	96.0
7	23.5	12	36.0	17	48.5	2	72.0	7	97.0
8	24.0	13	36.5	18	49.0	3	73.0	8	98.0
9	24.5	14	37.0	19	49.5	4	74.0	9	99.0
								110	100.0

new Values agreeable to your new Suppoſition. If you call the firſt 1, Ten, or a Hundred, &c. times leſs, then remove the Point one or two Places to the Left-hand.

1	1.00	28	1.56	6	2.30	14	3.70
1	1.02	29	1.58	7	2.35	15	3.75
2	1.04	30	1.60	8	2.40	16	3.80
3	1.06	31	1.62	9	2.45	17	3.85
4	1.08	32	1.64	10	2.50	18	3.90
5	1.10	33	1.66	11	2.55	19	3.95
6	1.12	34	1.68	12	2.60	**4**	4.00
7	1.14	35	1.70	13	2.65	1	4.05
8	1.16	36	1.72	14	2.70	2	4.10
9	1.18	37	1.74	15	2.75	3	4.15
10	1.20	38	1.76	16	2.80	4	4.20
11	1.22	39	1.78	17	2.85	5	4.25
12	1.24	40	1.80	18	2.90	6	4.30
13	1.26	41	1.82	19	2.95	7	4.35
14	1.28	42	1.84	**3**	3.00	8	4.40
15	1.30	43	1.86	1	3.05	9	4.45
16	1.32	44	1.88	2	3.10	10	4.50
17	1.34	45	1.90	3	3.15	11	4.55
18	1.36	46	1.92	4	3.20	12	4.60
19	1.38	47	1.94	5	3.25	13	4.65
20	1.40	48	1.96	6	3.30	14	4.70
21	1.42	49	1.98	7	3.35	15	4.75
22	1.44	**2**	2.00	8	3.40	16	4.80
23	1.46	1	2.05	9	3.45	17	4.85
24	1.48	2	2 10	10	3.50	18	4.90
25	1.50	3	2.15	11	3.55	19	4.95
26	1.52	4	2.20	12	3.60	**5**	5.00
27	1.54	5	2.25	13	3.65		

The large Figures in the odd Columns of all theſe Tables repreſent the whole Diviſions on the Lines, *viz.* thoſe that have Figures put to them; and the ſmaller Figures repreſent the Number of Subdiviſions

Subdiviſions: So that it will be eaſy to know which Table is proper for explaining the Diviſions on your Rule.

We come in the next Place to explain the Square or Girt-Line, and to ſhew the Value of each Whole and Subdiviſion; which ſhall be done in a tabular Way alſo.

The whole Diviſions are each divided into Ten Parts or primary Subdiviſions. Theſe primary Subdiviſions from the 4 at the Left-hand End, ſometimes to the 10 next following, are each again ſubdivided into 2 Parts, or ſecondary Subdiviſions; that is each Whole into 20: And ſometimes they are only thus ſubdivided as far as 7, and ſometimes there are no ſecondary Subdiviſions at all between the ſaid 4 and 10. Every primary Subdiviſion from 10 to 4 at the Right-hand End are divided into 4.

The following Table ſhews the Value of each Whole and Subdiviſion, when the firſt 4 is called 4 Units or whole Things; and when the whole Diviſions between the ſaid 4 and 10 are each ſubdivided into 10 only.

The Numbers in this, or any of the Tables, by moving the Point to the Right or Left as before taught, may be made to ſhew the Value of each Diviſion and Subdiviſion when the firſt 4 is called 4 Tens, or 4 Hundreds, or 4 Thouſands, *&c.* above Unity; or 4 Tenths, 4 Hundredths, 4 Thouſandths, *&c.* below Unity.

If each primary Subdiviſion be divided into 2 Parts all the Way from the firſt 4 to 10, *i. e.* if each Whole be divided into 20; then the Values of each of them are contained in the Second Table following.

4	4.0	8	5.8	6	7.6	4	9.4	12	13.00	30	17.50	8	22.00	26	26.50	4	31.00	22	35.50
1	4.1	9	5.9	7	7.7	5	9.5	13	13.25	31	17.75	9	22.25	27	26.75	5	31.25	23	35.75
2	4.2	6	6.0	8	7.8	6	9.6	14	13.50	32	18.00	10	22.50	28	27.00	6	31.50	24	36.00
3	4.3	1	6.1	9	7.9	7	9.7	15	13.75	33	18.25	11	22.75	29	27.25	7	31.75	25	36.25
4	4.4	2	6.2	8	8.0	8	9.8	16	14.00	34	18.50	12	23.00	30	27.50	8	32.00	26	36.50
5	4.5	3	6.3	1	8.1	9	9.9	17	14.25	35	18.75	13	23.25	31	27.75	9	32.25	27	36.75
6	4.6	4	6.4	2	8.2	10	10.00	18	14.50	36	19.00	14	23.50	32	28.00	10	32.50	28	37.00
7	4.7	5	6.5	3	8.3	1	10.25	19	14.75	37	19.25	15	23.75	33	28.25	11	32.75	29	37.25
8	4.8	6	6.6	4	8.4	2	10.50	20	15.00	38	19.50	16	24.00	34	28.50	12	33.00	30	37.50
9	4.9	7	6.7	5	8.5	3	10.75	21	15.25	39	19.75	17	24.25	35	28.75	13	33.25	31	37.75
5	5.0	8	6.8	6	8.6	5	11.00	22	15.50	2	20.00	18	24.50	36	29.00	14	33.50	32	38.00
1	5.1	9	6.9	7	8.7	5	11.25	23	15.75	1	20.25	19	24.75	37	29.25	15	33.75	33	38.25
2	5.2	7	7.0	8	8.8	6	11.50	24	16.00	2	20.50	20	25.00	38	29.50	16	34.00	34	38.50
3	5.3	1	7.1	9	8.9	7	11.75	25	16.25	3	20.75	21	25.25	39	29.75	17	34.25	35	38.75
4	5.4	2	7.2	9	9.0	8	12.00	26	16.50	4	21.00	22	25.50	3	30.00	18	34.50	36	39.00
5	5.5	3	7.3	1	9.1	0	12.25	27	16.75	5	21.25	23	25.75	1	30.25	19	34.75	37	39.25
6	5.6	4	7.4	2	9.2	10	12.50	28	17.00	6	21.50	24	26.00	2	30.50	20	35.00	38	39.50
7	5.7	5	7.5	3	9.3	11	12.75	29	17.25	7	21.75	25	26.25	3	30.75	21	35.25	39	39.75
																		4	40.00

4	4.00	5	5.00	6	6.00	7	7.00	8	8.00	9	9.00
1	4.05	1	5.05	1	6.05	1	7.05	1	8.05	1	9.05
2	4.10	2	5.10	2	6.10	2	7.10	2	8.10	2	9.10
3	4.15	3	5.15	3	6.15	3	7.15	3	8.15	3	9.15
4	4.20	4	5.20	4	6.20	4	7.20	4	8.20	4	9.20
5	4.25	5	5.25	5	6.25	5	7.25	5	8.25	5	9.25
6	4.30	6	5.30	6	6.30	6	7.30	6	8.30	6	9.30
7	4.35	7	5.35	7	6.35	7	7.35	7	8.35	7	9.35
8	4.40	8	5 40	8	6.40	8	7.40	8	8.40	8	9.40
9	4.45	9	5 45	9	6.45	9	7.45	9	8.45	9	9.45
10	4.50	10	5.50	10	6.50	10	7.50	10	8.50	10	9.50
11	4.55	11	5.55	11	6.55	11	7.55	11	8.55	11	9.55
12	4.60	12	5.60	12	6.60	12	7.60	12	8.60	12	9.60
13	4.65	13	5.65	13	6.65	13	7.65	13	8.65	13	9.65
14	4.70	14	5.70	14	6.70	14	7.70	14	8.70	14	9.70
15	4.75	15	5.75	15	6.75	15	7.75	15	8.75	15	9.75
16	4.80	16	5.80	16	6.80	16	7.80	16	8.80	16	9.80
17	4.85	17	5.85	17	6.85	17	7.85	17	8.85	17	9.85
18	4.90	18	5.90	18	6.90	18	7.90	18	8.90	18	9.90
19	4.95	19	5.95	19	6.95	19	7.95	19	8·95	19	9.95
										10	10.00

If each primary Subdiviſion, as far as 7 only, be ſubdivided into 2, *i. e.* each Whole, as far as 7, into 20; then the Value of each, ſo far, is contained in the laſt Table; and the Values of all the reſt in the laſt Table but one.

Having ſhewn how to value each Diviſion and Subdiviſion in theſe Lines; we come now to ſhew their Uſe in Meaſuring Plank and Timber.

The uppermoſt Line of Numbers on the Sliding-piece is contiguous to an equal Line of Numbers on the upper part of the Leg of the Rule, by the help of theſe two the Content of any piece of Plank may be found thus :

The Length being taken in Feet, and the Decimal parts of a Foot ; and the Breadth in Inches and Decimal parts ; then ſlide the Slider backwards or forwards till 12 on the upper Line ſtands againſt the the Length on the Line of Numbers on the Slider ; then keeping the Slider fixed, and looking for the Breadth in Inches on the upper Line, right againſt it on the Slider you have the Content of the Plank in Feet and Decimals of a Foot.

Example.

Suppoſe a Plank 40 Foot long and 20 Inches broad ; ſet 12 on the upper Line of Numbers to 40 on the Line of Numbers on the Slider, and againſt 20 on the ſaid upper Line you have 67 Feet nearly.

Notwithſtanding this is a general Rule, yet ſometimes there may ariſe Examples, that upon account of the Shortneſs of the Lines, may, to a Learner, have ſome Difficulty in them : For Inſtance, Suppoſe the aforeſaid Plank had been 35 Inches broad ; then if the 12 in the ſecond part of the Line of Numbers be that 12 which you pitch'd upon to ſet to the Length, and the 40 in the ſecond part of the Line of Numbers on the Slider be that 40 which you pitch'd upon to ſet the ſaid 12 to, you will will find when you reckon forward from the ſaid 12 to find the Breadth 35 on the Line of Numbers on the Leg, that it will fall beyond the Line of Numbers on the Slider ; in this Caſe you may either let the Slider ſtand as you had before ſet it, and pitch upon the 12 in in the firſt part of the Line of Numbers on the Leg, which you will find to ſtand againſt 40 on the Line on the Slider; and then counting forward from that 12 till you come to 35, you will find to ſtand againſt it on the Slider 117 Foot nearly. Or you may move the Slider till you bring 40 in the firſt part of the Line of Numbers on the Slider, to 12 in the ſecond part of the Line of Numbers on the Leg; and then counting forward from the ſaid 12 till you come to 35, againſt this you will find on the Slider 117, as before. Sometimes alſo it may happen that, as you have ſet your Slider, when you come to look for the Breadth as before, it falls beyond the Line of Numbers on the Slider towards the Left-hand: For Inſtance, Suppoſe a Plank were but 2 Inches broad, and 40 Foot long; if you ſet the 40 in the firſt part of the Line of Numbers on the Slider to the 12 in the ſecond part of the Line of Numbers on the Leg, and count backwards from the ſaid 12 till you come to the Breadth 2, you will find it to ſtand to the Left of the Line of Numbers on the Slider; move the Slider therefore till the 40 in the ſecond part of the Line of Numbers comes to the ſaid 12, and then againſt the aforeſaid 2 you will find 6 Foot, and about 7 tenths, or three quarters of a Foot nearly.

So that if after you have brought 12 to the Length, or which is all one, the Length to 12, you find the Breadth on the Leg to fall beyond the Line on the Slider, either to the Right or Left; then you muſt move your Slider till you bring the Length, counted in the other part of the Line of Numbers on the Slider, to the ſaid 12.

Note, If at any time you lie under a Neceſſity of altering the Denomination of any Figure repreſenting the Breadth in the Line on the Leg, by calling

it

it Ten times, or a Hundred times, *&c.* more or leſs than the Denomination it received from the 12 which you fixed upon to ſet to your Length; then muſt you alſo alter the Denomination of the Content, by calling it ſo many times more or leſs, than it would aſſume to it ſelf from the Denomination given to the Figure repreſenting the Length. This may ſuffice to perfect any Perſon in Meaſuring Plank by the Sliding-Rule.

We come in the next Place to ſhew how the Content of a Piece of Timber is to be found; and this is to be done by the Square or Girt-Line, and the Line of Numbers on the Sliding-piece that is contiguous thereto, and that by this Rule.

Set the Length, reckoned in Feet, on the Line of Numbers on the Sliding-piece, to 12 on the Square Line; then right againſt the Mean Square, counted in Inches, on the Square Line, ſtands the Content in Feet on the Slider.

Example 1.

Suppoſe a Piece of Timber be 25 Feet long, and 15 Inches ſquare. Set 25, of the firſt part of the Line of Numbers on the Slider, to 12 on the ſquare Line; then right againſt 15 on the Square, is 39 Foot; neareſt which is to be taken for the Content of the Piece, ſince Timber Meaſurers ſeldom make any Account of the Parts of a Foot.

Example 2.

But although this Rule be general, yet ſometimes it may happen that Difficulties will ariſe that require a particular Management: For Inſtance, Suppoſe a Piece of Timber 25 Foot long, and but 5 Inches ſquare;

ſquare; the Slider being ſet as in the firſt Example, look for the Square of the Piece, *viz.* 5 Inches, on the Square Line, and it will be found to ſtand beyond the Sliding-piece to the left, ſo that the Content cannot be found as the Slider now ſtands; in this Caſe therefore I move the Slider till 25 on the ſecond part of the Line of Numbers on the Slider, ſtand againſt 12 on the Square; and then againſt 5 on the Square ſtands 4 Foot, and 34 Hundreths of a Foot, or ſomething better than 4¼.

Example 3.

Suppoſe a Piece of Timber 25 Foot long, as before, and 30 Inches ſquare; the Slider ſtanding as before, I look for 30 on the Square Line, and find it falls beyond the Slider to the Right; I therefore move the Slider till the Length 25, in the firſt part of the Line of Numbers, ſtands againſt 12; and then looking for 30 on the Square Line, find ſtanding againſt it 156¼ Feet, which is the Content. And thus you muſt take the Length of your Piece, ſometimes in the firſt part of the Line of Numbers, and ſometimes in the ſecond, as the Caſe requires.

Example 4.

Suppoſe a Piece of Timber 25 Foot long, and 3 Inches ſquare; and that you ſet 25 in the ſecond part of the Line of Numbers, to 12 on the Square Line; then looking for 3 on the Square Line towards the Left from 12, ſince the Numbers decreaſe that way, you will find that 4 is the leaſt Number of all: In this Caſe you muſt call the 30 in the ſecond part of the Square Line 3, whiɔh is Ten times leſs than it really is; and then looking what ſtands right againſt it, it, you muſt in this Caſe call it One Hundred times leſs than it would be if you had given it a Denomination agreeable to that which you gave to the Length. But here indeed the ſaid 30 or 3 ſtands beyond the Slider to the Right, therefore ſet 25 in the firſt part of the Line of Numbers to 12; then right againſt 30, or as you call it 3, you will find 156 and better; that is reckoning forward on the Line of Numbers from 25 the Length (*viz.* 25 Units) which was ſet to 12 on the Square, the next whole Diviſion muſt be 30, the next 40; and ſo the Diviſion ſtanding againſt the Square 3, muſt be 156, which therefore being 100 times too great, cut off two Figures from the Right-hand by a Point, and the Content will be 1.56, or 1 Foot and 56 hundredths of a Foot, that is 1 Foot and a half and better. Again, ſuppoſing the Slider to ſtand as before; that is, ſuppoſing a Piece of the ſame Length, *viz.* 25, and but 2 Inches ſquare, you will find ſtanding right againſt this 2, as you call it, 70; that is when made One Hundred times leſs .70 or .7, or near three quarters of a Foot. If a Piece were the ſame Length and but 1 Inch ſquare, then looking for 1 or 10 on the Square Line, (the Slider ſtanding as before) and againſt it ſtands 17.4, and moving the Point two Places to the Left, it is .174, or 174 Thouſandths of a Foot, or nearly one fifth of a Foot.

Example 5.

Suppoſe a Piece of Timber 25 Foot long, and 50 Inches ſquare; ſet 25 in the firſt part of the Line of Numbers, to 12 on the Square Line, and counting onwards from 12, the next whole Diviſion will be 20, the next 30, and the laſt at the End 40; ſo that you cannot have 50 on the Square, upon the

Suppoſition that the 12 is 12 Units, call therefore the 4 at the beginning of the Square Line 40, which is Ten times more than it really is, and then look for your Square 50, and right againſt it would be the Content; but in this Caſe it falls beyond the Slider to the left, therefore bring the 25 in the ſecond part of the Line of Numbers on the Slider to 12, and then right againſt the ſaid 5, which you call 50, will ſtand 4.34, or 4 and 34 Hundredths, as will appear by numbering backwards from the 25 that ſtands againſt 12, which muſt be made One Hundred times greater by removing the Point two Figures to the Right-hand, and then it will be .434 Feet the Content.

Hitherto we have ſuppoſed the Piece of Timber to be exactly ſquare, but it moſt commonly happens that it is broader than 'tis thick; in this Caſe it is cuſtomary among Meaſurers, when the Difference is but ſmall, to add theſe two Dimenſions together, and to take the half of the Sum for the true Square. Thus, ſuppoſe a Piece be 14 Inches broad, and 13 Inches thick, the Sum of theſe is 27, the half of which is $13\frac{1}{2}$; this they take for the mean or true Square, and then proceed to find the Content as before taught. But if there is any conſiderable Difference between the Breadth and Thickneſs, then the Content ſo found will differ from Truth, and the more conſiderably by how much the more the ſaid Difference is; to prevent this therefore, they find a Mean Square by the Rule thus:

To find a Mean Square.

Set the Breadth, reckoned in Inches on the Line of Numbers, to the Breadth reckoned in Inches on the Square Line; then right againſt the Thickneſs in in Inches on the Line of Numbers, you have the Mean Square on the Square Line in Inches ; and with this and the Length proceed in all reſpects as before taught to find the Content of the Piece.

Example.

Suppoſe a Piece of Timber 30 Foot long, and 25 Inches broad, and 9 Inches thick ; ſet 25 on the Line of Numbers to 25 on the Square Line, then againſt 9 on the ſaid Line of Numbers ſtands 15 on the Square Line : This 15 is the ſide of the Mean Square ; then ſet ehe Length 30 on the Line of Numbers to 12 on the Square, and againſt 15 on the Square Line you have almoſt 47 Foot for the Content.

Note, If any round Timber is to be meaſur'd, girt it, and take one fourth part of the Girt for the Side of the Mean Square ; this is agreeable to Cuſtom, but not to Truth.

Thus much of the Uſe of the Sliding-Rule in meaſuring Plank and Timber : But becauſe every one may not be furniſhed with a Sliding-Rule, to make this Book yet further uſeful, I will ſhew how to meaſure Plank and Timber by a ſingle Line of Numbers, which almoſt every Carpenter's Rule is ſupply'd with. To number on this Line, may be learn'd from the Tables foregoing. Now to meaſure a Piece of Plank, this is the

Rule.

Extend the Compaſſes from 12 to the Breadth reckon'd in Inches ; this Extent laid the ſame way from the Length reckoned in Feet, will give the Content in Feet.

Example.

Example.

What is the Content of a Piece of Plank 30 Foot long and 15 Inches broad?

Extend from 12 to 15, which is from the Left to the Right-hand; this Eztent, ſet from 36 towards the Right, will fall at 37½ Foot the Content. If a Plank had been the ſame Length, and but 9 Inches broad, then the firſt Extent would have been from the Right to the Left; and being accordingly ſet from the Length 30 towards the Left, it would have fallen at 22½ Feet the Content.

To meaſure Timber by the Line of Numbers and a Pair of Compaſſes.

Rule.

If the Piece be ſquare, extend the Compaſſes from 12 to the ſide of the Square reckoned in Inches; this Extent ſet off twice the ſame way from the Length reckoned in Feet, will fall upon the Content in Feet.

Example.

Suppoſe a Piece of Timber 30 Foot long, and 15 Inches ſquare; what is the Content?

Extend from 12 to 15, which is towards the right Hand; therefore the ſame Extent ſet from 30 to the Right twice, will fall on 47, the Content in Feet.

If there be no conſiderable Difference between the Breadth and Thickneſs, then take half their Sum for the Side of a Mean Square, and proceed as before.

before. But if there is a conſiderable Difference, then you muſt find the Side of a Mean Square after this manner.

Extend from the Breadth to the Thickneſs; ſet this Extent to any Line of equal Parts, and ſee how many of thoſe equal Parts it contains. Take half the Number of them, and ſet either from the Breadth in the Line of Numbers towards the Thickneſs, or from the Thickneſs towards the Breadth, and the Point of the Compaſſes will fall on the Mean Square: Or, which is all one, find the Middle between the Breadth and Thickneſs on the Line of Numbers; this is the Mean Square; with this and the Length proceed as before.

FINIS.

BRITISH MUSEUM 30 DEC 68

Advertiſement.

Gentlemen Boarded, and Taught the Mathematicks and Merchants Accompts, by THOMAS HASELDEN, near the *Hermitage, London.*

&c.

ference,
e after

eſs ; ſet
ee how
ke half
Breadth
neſs, or
and the
Mean
ddle be-
Line of
his and

---

at the
Ac-
DEN,